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# soft sector®

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For those with limited telecommunications experience our documentation includes a **Beginner's Primer**. This primer clearly and simply explains basic terms and can serve as the total manual needed for using INTELLICOM. **We even include a complete sample logon session for Compuserve that demonstrates how to use that service.** For the advanced communicator there is complete documentation on all emulations and protocols used. Actually, **Help Screens** are available anywhere within the program by pressing a single key and the manual is almost unnecessary. COMPARE!

### REAL TERMINAL EMULATION

INTELLICOM offers you real terminal emulation. Not just dumb TTY. Select from a menu of terminals that include **Digital VT100 and VT52, ADDS Viewpoint and 25, ADM3 and ADM5, Televideo 910 and 925,** and of course a simple TTY. By the way, **our VT100 emulation is extensive and has been tested on the VAX editor EDT** and several other mainframe editors - and it works fine. A real **"break key"** is implemented on all emulations. We even allow you to look like the **Compuserve Executive Terminal**. Your PC can look like any of the above with INTELLICOM and operate with your business or university computer.

Which terminal(s) does our competition emulate?

### FILE TRANSFER CAPABILITIES

Of course INTELLICOM offers the ability to **send and receive files** - all kinds of files. You may send and receive simple ASCII files with XON/XOFF support (the most common for text) but you may also use the most popular **error checking protocol, Xmodem**. We support **both checksum and CRC methods in Xmodem**. This method of file transfer will allow you to transmit any type of eight bit data including an EXE file. You may purchase the source code for host support on several mainframe computers of this most popular error checking protocol for only \$10.00. We also support the **Compuserve A** protocol for error checking for use on that system. For those who may require it, we also include Hex file transfer capabilities and PTR/PTP support.

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# soft sector

The Monthly Magazine for  
Sanyo Personal Computer Users

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For Soft Sector Advertising and Marketing office information, see Page 78.

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■ The small disk symbols appearing beside features and regular columns indicate that the program listings with those articles are on this month's **SOFT SECTOR ON DISK**, ready to LOAD and RUN. For full details, see the **SOFT SECTOR ON DISK** ad on Page 65.



# Sanyo users get a NEW software deal . . .

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Your computer is fantastically fast...once it knows what to do. You probably realize that a computer is the combination of hardware and software, working together smoothly, to give you what you want. Either one alone is useless. Software is really the key...the "mind" of a computer system. Every project or task you want to do requires a new specific software application to make your computer behave exactly the way you desire.

Of course you may be able to "force fit" your application into some existing canned package you have, but to really be flexible you need a separate program for your special purpose.

Until now, that meant you were forced to pay money for application software off the shelf, or if you could afford it, have it custom written for you, or if you were qualified, do it yourself...spending endless hours figuring it out and writing it. **Now, your computer can write individual application programs for you.** These programs are each separate, unique software programs that run in the standard BASIC on your computer.

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Dealer inquiries call (904) 269-1918 QUIKPRO+II is also available on IBM-PC, TRS-80, CP/M 8" and Osborne.



# LETTERS TO THE EDITOR

PAR  
AVION

## YA' DONT SAY

Editor:

First, I would like to say that I love **SOFT SECTOR** and everything in it. I really enjoy your game and graphics programs.

I recently got a Video RAM Board, but I'm having some problems. I am an avid game player and was hoping the video board would let me play some of the non-autoloading games for the IBM. I tried some — specifically *Ultima II*, *Fahrenheit 451* and *Gato* — and none of them worked. Is there a list of software that runs on the video board? If there is, where can I get it?

Also, I was wondering if there are any other Sanyo users in the saddleback Valley area of Orange County. If so, please send letters to 26425 Fresno Drive, 92691.

Jeffrey A. Lubetkin  
Mission Viejo, CA

*Editor's Note: There is a small publication from Sanyo entitled "Sanyo's Compatible Software Catalog" that includes about 40 programs that run on the video board, along with several pages of programs that run on the standard 550/555 system. It has a May cover date, a \$3 price tag, and is available through Sanyo's four major service organizations.*

## Ovation

Editor:

Let me state that I have subscribed to many magazines in the past. However, I have never been so pleased as I am with the contents, format, and sincere and genuine desire to assist those of us who are beginners in this field, by the writers, experts, and management of **SOFT SECTOR**.

Richard S. Wilkins  
Hallandale, FL

## BACKDOOR MAN

Editor:

In reply to Bill Hibbet's question in the July issue (Page 23), there is an undocumented "hidden" patcher in *WordStar* Ver. 3.3 that is accessible from *Install's* main menu.

The menu prompt reads "Please enter selection A, B, C . . ." Instead, enter a plus (+). This places you in the patcher and from there on in it's easy (more or less).

To alter *WordStar* as Bill wishes, i.e., change the printing "Pause for paper change" default to yes, change 03CD from 00h to FFh, and 03CE likewise.

While it is appreciated that the *Install* program of *WordStar* does not make provisions to change default settings from fanfold to single sheet via a menu selection, it does provide a patcher, and given program addresses to change, customization is easy.

Hank Beeser  
West Lafayette, IN

## THE TRAIL OF BIGPRINT

Editor:

If you are using Michael Himowitz's great program, *Sanyo Bigprint* (July '85, Page 10), or otherwise need to refer to the ASCII equivalent of characters, it is inconvenient to keep digging out the manuals and finding the conversion charts. By using one of the following BASIC programs you can have a compact slip of paper with the ASCII numbers and characters taped to the front of your printer or some other handy location.

For a seven-row listing of the characters corresponding to ASCII numbers 32 through 126, use the following:

```
10 FOR A=32 TO 126
20 LPRINT A;CHR$(A);
30 NEXT
```

If you have a dot matrix printer, you may want to substitute `FOR A=1 TO 255` for `Line 10`, which will give a listing of 18 rows. For a longer, but neater list of 19 rows, change the semicolon (;) at the end of `Line 20` to a comma (,).

Bruce A. White  
Mt. Ranier, MD

## THE LOST COLONY

Editor:

I would really like to meet other Sanyo users in the Roanoke, Virginia, area and to do this would like to start or find out about a Sanyo users' group in the area. I can be reached at (703) 721-2910, or by mail at Rt. 1, Box 341, 24184.

Paul T. Miller  
Wirtz, VA

## VIDEO MADNESS

Editor:

The "550 Series Video Primer" in your June issue (Page 10) was an excellent article. It stated that the CRT-70 monitors would work with a positive or negative sync signal. This is true, but there may be another problem. I use my Sanyo DMC-7500 monitor with both my MBC-555 and my IBM PC, the PC being similar to the video board.

The DMC-7500 works perfectly with the 555, but when connected to the IBM in the 80 by 40 text mode, when you push in the green display button, the text has shadows in it as if the pixels are not all the same intensity.

I think it has to do with the dual intensity, but would like to know of a hardware or software fix.

Fred J. Hoppes  
Ft. Lauderdale, FL



7



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## PROGRAMMERS

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# SOFT SOAPBOX

With this issue, SOFT SECTOR rounds off her first year and begins her second. Frankly, I can't help but feel as pleased about it as a mother hen setting on a Grade A Large. But all of us here have tried to temper our feelings as much as possible. After all, there is no reason to make a big thing of getting through a year. No one ever thought for a moment that we wouldn't.

Have we accomplished anything worthwhile over the past 12 months? I hope you will agree with my conviction that we have. We have tried to offer a quality publication in support of a computer that was often hard to find support for elsewhere. We have provided a forum for the experts to pass along information to those with less experience. And by providing easy access to the owner base, we helped spur software producers to write or revise programs to run on the Sanyo 550 series.

Most importantly, though, I think we have filled the primary purpose of SOFT SECTOR all along. We have presented many, many programs in the pages of SOFT SECTOR, written by professional programmers exclusively for the 550/555, that might never have made their way into your software collection otherwise.

For these things and more throughout our first year, we owe many thanks to all the writers and programmers who were willing to share their knowledge and their creations with the rest of us. I know I have learned a lot from them. I trust that you have, too.

But the first year is *already* behind us; there's no looking back. And we intend to make SOFT SECTOR's second year even better than the first.

Change, they say, is the only thing you can count on in life, and you can count on lots of it taking place in the next few issues of SOFT SECTOR. As most of you know by now, Sanyo is bringing a couple of new machines into the marketplace and, as soon as they become available to us, we intend to include support for them in the magazine. Clearly, with these new IBM PC-compatibles on the scene and with many of you adding the Video RAM Board to your 550/555s, this will dictate an increasing emphasis on GW-BASIC. Rest assured, though, that we will never forsake Sanyo BASIC while the SYMBOL command still lights a pixel in the darkness.

One new item we will be launching in the immediate future should be of considerable interest to everyone: a column written by the good folks at Sanyo, passing along information and responding to all the questions which only they can answer. Some of you have complained that you can't get a reply from Moonachie; now, perhaps, you will be able to. Send your queries to Sanyo Business Systems in care of Sandy Waters, Marketing Manager. We will rush the answers into print as soon as we get them and, if at all possible, send an advance response to each question so you will not have to wait for publication.

With that, it's time to get on to the rest of the magazine — our August issue and the beginning of SOFT SECTOR's second year. This time next year, we can look back again and see just how much we've learned, how much we've gained, and how far we've all come since we first purchased our Sanyo computers.

— Kevin Nickols





## Can You Name a Dual-Drive Color PC That Runs Lotus 1,2,3 and Costs Under \$1500?

### Hints

- It comes with a 14" RGB monitor much like the 14" monitor that comes with the \$2495 Leading Edge PC.
- It has dual 800K disk drives much like the \$2495 Tandy 2000, but it also has the ability to read and write to popular 160K, 320K, and 360K IBM-PC formats.
- It's an 8088, MS-DOS system with 256K of RAM, but it comes with a better free software bundle than the 8-bit Kaypro including MS-DOS 2.11, HAGEN-DOS, DOS-TUTOR, WordStar 3.3, EasyWriter, Spell, Mail Track, PC File III, FILEBASE, CalcStar, games, graphics, utilities, and two BASIC languages.
- Although it's not PC-DOS compatible it will run hundreds of the same programs as the IBM including dBASE II, Multiplan, the PFS series, Lotus 1,2,3 and even Flight Simulator.

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With this utility, you're free to use *SpellStar* to check your spelling — without abandoning your word processor of choice.

# Easy Writer -To- ASCII Conversion Utility

By Ray C. Robinson

Here is a short BASIC program that will convert *EasyWriter* document files to plain ASCII text files. Now old friendly *EasyWriter* can be used as a text editor for languages such as PASCAL, macro assembler and BASIC. The converted *EasyWriter* documents can also be used by other word processors, such as *WordStar* with *SpellStar*.

Remember, though, that once documents are converted, they cannot be used again by *EasyWriter*. Make a backup copy of the file you wish to convert using a different file extension; for example, COPY EZFILE.EZF EZFILE.TXT. Use the backup copy for conversion and you will always have

(Ray Robinson is an electronics technician with the FAA, holds a B.A. degree in business administration, and has been interested in home and personal computers since 1980. He may be contacted at Rt. 8, Box 725, Lake Charles, LA 70605; 318-474-5301.)

an original you can load back into *EasyWriter* for further editing.

As an added feature, the *DOC2ASC* utility will also strip the eighth bit from *WordStar* documents and convert them into plain ASCII text files as well.

Since *DOC2ASC* uses random disk access, the maximum file length it can handle is 32,767 bytes. A word about long files: *patience*. Since *DOC2ASC* runs in BASIC, long files will take a relatively long time to convert. If you have access to *Bascom* (the Microsoft BASIC Compiler), however, a compiled version will dramatically decrease the conversion time. For example, *DOC2ASC* will convert a 3,328 byte document in two minutes and three seconds; a compiled version will do the job in 38 seconds.

## Program Explanation

Line	
10	Input the filename and open random file with a one-byte file buffer.
20	If the file does not exist, close the file, remove the filename from the disk and terminate the program.
30	Designate data as string CH\$, start the FOR/NEXT loop and get a byte from the disk.
40	If the byte is the EOF designator (1A Hex), fill the balance of the file with 1A's, close the file and terminate the program.
50	If a byte contains the eighth bit ( <i>WordStar</i> file), modify it and write the corrected byte to disk.
60	If the byte is non-text, replace it with a space character (20 Hex) and write it to disk.
70	If done, close the file and terminate the program.

### The listing: DOC2ASC.BAS

```

1 '*****
2 '*                               Doc2asc                               *
3 '*   WILL CONVERT DOCUMENT FILES TO PLAIN TEXT FILES                 *
4 '*   BY RAY C. ROBINSON, LAKE CHARLES, LA, MAY 1985                   *
5 '*****
6 '
10 CLS:INPUT "NAME OF FILE YOU WISH TO CONVERT: ";FILE$:OPEN "R",#1,FILE$,1
20 IF LOF(1)=0 THEN PRINT:PRINT FILE$;" NOT FOUND":CLOSE#1:KILL FILE$:END
30 FIELD #1,1 AS CH$:L=LOF(1):FOR I%=1 TO L:GET #1,I%:CH=ASC(CH$)
40 IF CH=26 THEN LSET CH$=CHR$(26):FOR J%=I% TO L:PUT #1,J%:NEXT:CLOSE #1:END
50 IF CH>127 THEN CH=CH AND 127:LSET CH$=CHR$(CH):PUT #1,I%:GOTO 70
60 IF CH<>10 AND CH<>13 AND CH<32 THEN LSET CH$=CHR$(32):PUT #1,I%
70 NEXT:CLOSE #1:END

```





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# BUSINESS SECTOR

CHARLOTTE & BRIAN STONE  
Soft Sector Contributing Editors

**C**harlotte and I would like to thank Laura Stevens, manager of computer sales at J. Malcolm Flora, Inc. of Plymouth, Mich., for the loan of two dot matrix printers made by Panasonic: a KX-P1090 and KX-P1091. Without the use of these two machines many of your questions could not be answered.

Because of the difficulties with the Sanyo MBC-550 series computer and some of the Panasonic printers, we will repeat some answers in the column more often than some people may feel we should. This will be done because of the large volume of letters we are receiving which ask the same questions.

**Q.** I have a Panasonic KX-P1090 dot matrix printer and I cannot get it to print super/subscript or italics with WordStar.

Gilbert I. Schor  
Fredericksburg, VA

(Charlotte A. Stone, office manager for the Detroit office of the Shaw/Walker Co., has been using a Sanyo computer in her daily work routine since October of 1983. Brian M. Stone has been using a variety of Sanyo computers since May of 1983. Charlotte and her husband, Brian, have been involved with computers since July of 1978 and presently own and use five computer systems on a daily basis, three of which are Sanyos.)

**A.** The Panasonic KX-P1090 can do super/subscript and italics by installing the following control sequences. The first thing to do is install *WordStar* for the Epson MX-80/MX-100 without Grafrax. First install the printer as the Epson, choice 'I' from the standard printer types menu, which is choice 'C' of the Main Installation Menu. Now use choice 'D,' custom menu of printers, and do the following:

Location	Control	Control Sequence
User #1	^PQ	1Bh 53h 00h Superscript On
User #2	^PW	1Bh 53h 01h Subscript On
User #3	^PE	1Bh 54h 1Bh 48h Super/Sub Off
Ribbon Select	^PY	1Bh 34h Italics On
Ribbon Select	^PY	1Bh 35h Italics Off

This functions exactly as it should. Note that all control sequences are given in Hex notation.

**Q.** I had just finished a letter to Toshiba when the March issue of *SOFT SECTOR* appeared and persuaded me that you would provide a better answer to my problem. I have recently purchased a Toshiba P1340 dot matrix printer to use with my Sanyo 555-2 computer. I have encountered problems with some of the fonts that the printer can provide for use with WordStar. I have enclosed some print samples that show what my problems are.

William R. Cantrall  
Western Springs, IL

**A.** You do not say how you have *WordStar* installed regarding printers. This is the most important consideration when starting to use *WordStar*, which comes installed for the IBM graphics printer. After reading the pages of the



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**Q.** As you know there is a speed-up patch for WordStar. Has anybody figured out a way to speed up CalcStar? I seem to have a problem that I cannot solve. CalcStar will not calculate in Row 32?

Marcia L. Peters  
Providence, RI  
John Mickel  
Lacey, WA

**A.** We are not aware of any way to speed up CalcStar. Also, CalcStar will not calculate in Row 32. Why, we do not know. MicroPro will not even respond to us and acknowledge the problem.

As a suggestion you might think about replacing CalcStar with SuperCalc<sup>3</sup>, Release 2. To use the off-the-shelf version, you will need the Sanyo Video Ram Board. If you do not have the video board, you can get a modified version of SuperCalc<sup>3</sup> from MichTron of Pontiac, Mich. Charlotte and I have changed over to it and will be adding it to our supported software in the future. If you need to do serious spreadsheets, you might consider doing the same.

**Q.** I can't figure out what I'm doing wrong. I'm trying to merge the Dealer listing with the Cispach listing. I've tried everything I can think of using "File Verify" and "Derived Field," but keep coming up with the statement "Length of key described in this form does not match file Dealers or its index (.NDX) file is not properly terminated."

Ronald Kraatz  
St. Clair Shores, MI

**A.** First, let's describe the problem. The Dealer listing is a DataStar form containing mailing list-type information. It has six fields: dealer name, street, city-state-zip, area code, phone number, and I.D. number. Cispach listing is also a DataStar form. This one is actually used as a mailing list. It has nine fields: person's name, position, first initial, middle initial, dealer I.D. number, dealer name, branch location, street, and city-state-zip.

You will notice that four of the fields in Cispach are the same as fields in Dealer. To save time in entering data, one of these four fields in Cispach is to act as an index and look up the information for the other three fields in the Dealer data file. Then by entering data in one field, three other fields will be filled automatically by the computer. The problem was that Mr. Kraatz picked the wrong one of the four choices.

In order for Cispach to look up the information it needs from Dealers, the key field in Dealers must be the same as the field in Cispach that you use to call it up. That is, "ID." Presently the key field in Dealers is field #001, "Dealer." You must change the key field to be field #006, "ID." Cispach is trying to match the contents of its three-space ID field with the 25-space contents of the Dealer field in Dealers. That is why you are getting the error message about the length of the key.

**Q.** In InfoStar, I have made a form for Customer Purchases. When going to DataStar and printing the form and data using CONTROL-U, the form double spaces. Can I get it to single space or do I need to change pin settings on my Epson RX-80 printer?

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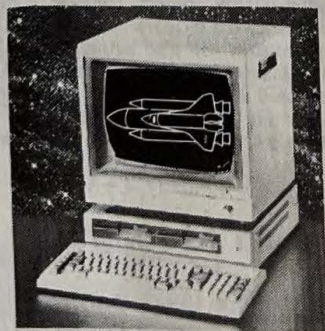
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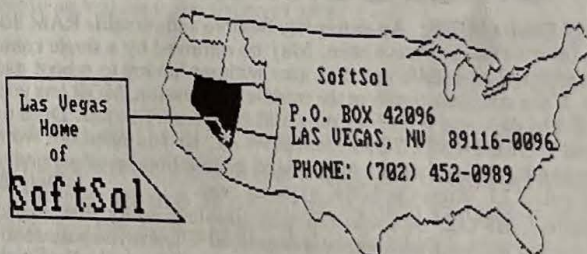
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I also have reports based on the above by TSR totals and individual TSR's CP, JN or DM. So far I have yet to be able to get a complete individual TSR report using "Include If." It only runs the first 10 or 11 accounts of each TSR.

John Kupfer  
Harland, MI

**A.** Another description is needed here. The form for Customer Purchases is a long one — a full page in compressed print. It compares purchase figures for two years in various categories, figures averages and figures gain or loss between the two years. One of the fields is called TSR. The TSR field is two spaces long and contains one of three possible entries: CP, JN or DM. One of the reports is named DM.RPT. It contains the statement in its file description area, "INCLUDE IF \$TSR="DM." The report accesses the data file for Customer Purchases.

The reason that DataStar is double spacing during a CONTROL-U printout of your form with data is that, when you designed your form, you used the space bar to move the cursor farther to the right on the screen beyond the last field on each line of your form. If you do that, FormGen will save those blank spaces as part of your form. This makes each line of your form wider than the page you were printing on, in which case the program wraps the remainder of the line around to the next line on the page.

If words are wrapped around, it is easy to see what is happening. When blank spaces wrap around, the evidence of what is happening disappears. To test a form for such spaces, move the cursor to the last printed character on

each line (while in FormGen). Then use CONTROL-D to move the cursor to the right. If a blank space exists, the cursor will move right. If there is no blank space saved there, the cursor will wrap around to the first column of the next line of your form.

Another test is to place the cursor in the first column on the left of the screen in line two or greater, then use the backspace or CONTROL-S to wrap the cursor around to the right end of the previous line. This method will show you how many blank spaces need to be deleted.

The only correction I made in your DM report was to change the answer to a question in the file description area of the report. You had answered the question, "Should the file be read in index order?" with a yes. I changed the answer to no. Reading a large file in index order during a report seems to make the report crash. I would be interested if any readers can explain why this is so.

**Q.** Enclosed find copies of CONTROL-W listings for both an inventory form and a sample of a report. My reports are now printing out just fine, but the CONTROL-W listing is printing out in error. In the report listing file definition, it prints out as "Access: Input (Index Order)." This is not right according to the screen where it is set up as being "Not In Index Order."

I have a number of reports set up like this and they are all doing the same thing. When I had them set up the other way around, the listing printout was also the other way around. When set up that way, i.e. to read "In

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*Index Order," then the system would crash in a large file, whereas it works just fine this way.*

*Mariel  
Dallas, TX*

**A.** This is not an answer to the above problem, but a confirmation of it. I experimented with a report relative to the above and found that, if during the file definition portion of a report I answered that the file should be read in index order, the CONTROL-W printout of the report would show "Access: Output." If I answered no, the report should not be read in index order, the CONTROL-W printout would show "Access: Input (Index Order)."

This appears to be a bug in our MS-DOS version of *ReportStar* that we received with our Sanyo, because I also have a CP/M version for another machine which prints out correctly. Do we have a programmer out there somewhere who can tell us what to do to correct this problem? I'd love another chance to use DEBUG.

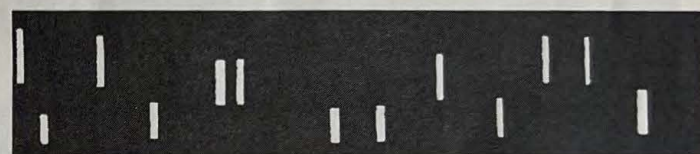
**Q.** I would like to add to the answer you gave Sally Mitchell in the April issue. You indicated that you do not know how to get *ReportStar* to output control codes to the printer. I also have an Okidata printer and I figured out how to do it.

The version of *ReportStar* that came with my computer installs like *WordStar* and the installation procedure has options for alternate and standard pitch as well as for the four user-defined options. The difference is that the control

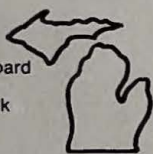
codes are activated in REDIT with CONTROL-V (rather than CONTROL-P). To set alternate pitch, for example, enter ^V^A from REDIT. Also like *WordStar*, one can set the printer to initialize at any desired pitch. Like Ms. Mitchell, I have two printers. I have installed a second copy of REPORT.COM (on another disk) for the letter-quality printer.

*Stewart Shapiro  
Bexley, OH*

**A.** Thanks for the reminder. We were aware of the print controls for boldface, underlining, etc., but forgot about the alternate pitch and user-defined options. If anyone needs help with installing these items, send the information from your printer manual. The installation menu is just like the one for *WordStar*, so any of the instructions printed in earlier issues relative to installing *WordStar* for certain models of printers will work for *ReportStar* too.



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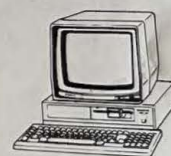
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# BATch Files: The Final Chapter

By Danny Humphress  
Soft Sector Technical Editor

**I**n this, the final "Mastering MS-DOS" installment on batch files, please indulge me as I once again call upon my favorite comic book hero, BATch Man, to ease us into the subject.

Entering into the hostile territory of MS-DOSdom, ruled over by the arch villain, Chaos, BATch Man is filled with anticipation. His mission is to rid the city of this menace; to restore order and to once again make the region citizen-friendly.

### IF I Were A BATch Man

We've been hinting about how the batch file processing of MS-DOS is able to make decisions based upon user input and other conditions of the operating system. By using batch files in this way, the computer's operating system can be customized to the specific needs of the user, making it easy to operate for those unfamiliar with MS-DOS or computers in general. This is achieved through the use of the IF command.

We can use IF to compare replaceable parameters such as %1 and %2 to themselves or other strings and act upon the results of that comparison. The best way to explain this is through example, so that's how we'll proceed. We'll create a batch file called LIST.BAT, which will either print the disk directory or the CHKDSK list of the disk on the printer, depending upon whether the user types LIST CHECK or LIST DIR. Create this LIST.BAT file on your disk with EDLIN or some other text editor and try it:

```
IF %1==CHECK CHKDSK %2> PRN:
IF %1==DIR DIR %2> PRN:
```

You may have noticed that a second parameter, %2, may be optionally entered after the words CHECK or DIR. The

user could use this for instance, to get a list of all the .COM files with:

```
LIST DIR *.COM.
```

In the example above, %1 is replaced with DIR and %2 is replaced with \*.COM.

The batch file is processed from the top down. In English, the first line says, "If the first parameter entered is CHECK, do the CHKDSK command on the second parameter (if any) and route the output to the printer." The second line says, "If the first parameter entered is DIR, do a directory of the second parameter (if any) and route the output to the printer."

If you had not entered either CHECK or DIR in uppercase after LIST, the computer would have dropped through the batch file giving no message and no results. We can easily get around this lack of computer/human communication, as you will soon see, by adding a little more "intelligence" to our batch file.

### GOTO

Thus far, our batch files have started with the first line and executed all the lines sequentially through the last. By adding "labels" to parts of the file, we can direct the computer to skip around within the file; to repetitively do one part of the process or to skip over entire chunks of lines.

By adding a little pizzazz to our old LIST.BAT file, we can have it inform the user about what's happening or return a message if the user enters an unexpected parameter. Enter this batch file and try it for yourself.

```
ECHO OFF
CLS
IF %1==CHECK GOTO CHECK
IF %1==DIR GOTO DIR
ECHO Please enter:
ECHO LIST CHECK [:drive]
ECHO or LIST DIR [:drive]
GOTO END
:CHECK
ECHO Printing Disk Check Report . . .
CHKDSK %2 > PRN:
GOTO END
```

*(Danny Humphress, SOFT SECTOR's Technical Editor, is the owner of a computer software and consulting firm in Louisville, Ky. Danny brings to SOFT SECTOR his extensive experience with small business computers and applications software.)*



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```
:DIR
ECHO Printing Disk Directory . . .
DIR %2 > PRN:
:END
```

The first two lines of the file simply turn off the ECHO so that commands are not displayed on the screen and then clear the screen.

The next two lines direct the "flow" to skip down to one of the lines labeled :CHECK or :END. If neither of these two conditions are met, the flow continues to the next three lines which give the user some help with using the file.

If CHECK was the parameter entered, a message is displayed, a CHKDSK is sent to the printer, and the GOTO END command causes the program to go to the line labeled :END.

If DIR is entered, a message is displayed and the directory is printed. There is no need for a GOTO END at this point since we have already reached the end of the batch file and there are no more commands to process.

## EXIST

Another feature of the IF command is that it can do something based upon whether a file exists or not. This is useful when you are doing something with a group of files but you are not sure if all of the files are in the directory. For instance, if you wanted to list the files called AR.DAT, AP.DAT, PR.DAT, but you don't want it to display an error message to the user if one or more of the files does not exist. The following batch file demonstrates how you could do this:

```
IF EXIST AR.DAT TYPE AR.DAT
IF EXIST AP.DAT TYPE AP.DAT
IF EXIST PR.DAT TYPE PR.DAT
```

## NOT

By adding the word NOT between the IF command and the condition, the IF command line is declared "true" if the condition is "false." This sounds confusing at first, but the negative NOT works here just as it does in plain English. This modification of the previous batch file example shows this. We've added lines to display a message if a file does not exist:

```
IF EXIST AR.DAT TYPE AR.DAT
IF NOT EXIST AR.DAT ECHO AR.DAT is not here!
IF EXIST AP.DAT TYPE AP.DAT
IF NOT EXIST AP.DAT TYPE AP.DAT is not here!
IF EXIST PR.DAT TYPE PR.DAT
IF NOT EXIST PR.DAT TYPE PR.DAT is not here!
```

## SET

SET opens up a whole new world of replaceable parameters. Instead of just using the 10 (%0 through %9) that are parameters entered when the batch file is executed, it is possible to use an almost unlimited number of "variables" within a batch file. The variables may be set before or during the execution of the batch file with the SET command.

For those of you familiar with the BASIC programming language, SET can be thought of as MS-DOS's form of the LET command since it performs essentially the exact same function — to assign a value to a variable.

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Suppose we had a long batch file which was made to work with a computer that had drives A: and B: and you wanted to make it work on drives C: and D: respectively. You could go through the entire batch file changing A's to C's and B's to D's or use the search and replace function of EDLIN, but a more "elegant" approach would be to use something like %drive1% and %drive2% instead of the specific drive names. You could set the value of these two "variables" at the beginning of the batch file and they would automatically substitute the correct values where needed.

The first two lines of the batch file, in this case, would be:

```
SET drive1=A:
SET drive2=B:
or
SET drive1=C:
SET drive2=D:
```

Wherever %drive1% appeared in the batch file, A: or C: would be substituted and likewise for %drive2%. To change the entire batch file for another set of drives, you need only change the first two lines of the file!

These parameters will stay in the computer until you turn it off or assign them another value. They may be removed from memory by entering the SET command with nothing after the equal sign such as: SET drive1=.

The batch file in Example A demonstrates this:

#### Example A.

```
ECHO OFF
CLS
SET drive=A:
SET computer=Sanyo 775
ECHO This is a directory of drive%drive% on the
    %computer% computer:
DIR %drive% /W
PAUSE
CLS
ECHO This is the check of drive %drive% on the
    %computer% computer:
CHKDSK %drive%
```

Replace the drive= and computer= parameters to suit your particular computer configuration.

SET can also be used with the standard %0 to %9 replaceable parameters.

## SHIFT

Another way of handling more than the usual 10 parameters, is to "pop" off the %0 parameter and "bump" up the other parameters. %0 would be lost, %1 would move to %2, %2 would move to %3, and so on. %9 would have no assigned value. The following batch file, SHIFTER.BAT, demonstrates this:

```
ECHO OFF
CLS
SET last=%9
:LOOP
ECHO 0 = %0
ECHO 1 = %1
ECHO 2 = %2
ECHO 3 = %3
ECHO 4 = %4
ECHO 5 = %5
ECHO 6 = %6
ECHO 7 = %7
ECHO 8 = %8
ECHO 9 = %9
IF %0==%last% GOTO END
PAUSE
SHIFT
GOTO LOOP
:END
```

Run the batch file with:

```
SHIFTER A B C D E F G H I
```

This batch "program" (we might as well call them programs — that is what they are) will display each of the ten parameters, shifting it up one space each time, until it exhausts all the parameters. Note the use of the %last% variable to see if the original last record has moved to the top of the list.

## Where To From here?

We've come a long way over the past 12 months in our travels through MS-DOSdom. If you have followed along this far and done some exploring on your own, you know more about this operating system than most computer users. But will we stop here? Of course not! Our goal is to "master" MS-DOS — to make it feel as comfortable under your typing fingers as any other familiar tool feels in your hand. MS-DOS is a tool. It's a tool that gives us the power to move "mountains" of electronic data at light speed. We have only begun to master it.



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Painting a pretty picture  
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COLOR command.

## BASIC TRAINING

# Color And Graphics

By Fred Blechman  
Soft Sector  
Contributing Editor

**T**he designers of the Sanyo MBC-550 series of microcomputers have done a marvelous job of providing color and graphics, especially in comparison with many more expensive MS-DOS computers. You can freely mix standard-size and enlarged text on the screen with high-resolution graphics, and color any of the 128,000 points on the screen in any of eight colors!

A full set of "graphics characters" is directly available from the keyboard with the use of a special GRAPH key. And all this is included without extra charge even on the under-\$1000 Sanyo MBC-550! The much more expensive IBM PC requires an optional graphics

board for color, and then only offers limited black and white text when in the high-resolution graphics mode.

In the next few installments of "BASIC Training" we will cover the COLOR command, enlarged text using the SYMBOL command, and point-to-point graphics for LINES, CIRCLES and enclosed shapes (including painting them). We'll have a brief look at JOYSTICK commands, and will discuss the concepts of WINDOW and VIEW that allow zooming techniques.

### Eight Colors

The standard Sanyo MBC-550/555 microcomputer produces eight colors, each identified with a number from zero to seven. Each of these colors can be used as a "foreground" or "background" color — like ink on paper. For example, if you were printing with red ink on yellow paper, then the foreground color would be red and the background color would be yellow.

The "default" colors — those colors that appear unless you specify otherwise — are green on foreground and black on background. On a monochrome monitor this shows as a medium brightness level. On a compatible RGB color monitor this shows as green letters on a black background, thus eliminating the need for a "green only" switch featured on some color monitors.

### Setting The Display Switch

Inside the 550 series case is the "DTS-4 DIP Switch," a small four-toggle switch, with each toggle having a marked "ON/OFF" position. If you take the cover off the main cabinet (just remove five screws and lift off the cover), you'll find this switch at the left rear of the chassis, looking from the front.

If you are using a color monitor, it doesn't make any difference what position these four toggles are in. If you are using a monochrome monitor, there is a big difference! Table 1 shows the effect of the two recommended switch combinations.

The "factory" setting loses red completely (it appears the same as black), and causes yellow and white to blink on the screen. The yellow alternates between its regular medium brightness to off completely, and white alternates between the highest brightness and medium brightness. This can be used for special effects, but is more disconcerting than useful for most applications.

I suggest you put these switch toggles in the "color" mode, since this will give you a different brightness level for every color — black and seven different brightness levels — allowing you to see any "color" as a shade of brightness. These levels are shown in the last column of Table 1. These different brightness levels can be very useful for highlighting text or graphics on the screen with a monochrome monitor — something most microcomputers do little of, if at all.

Bear in mind again, however, that the RGB color monitor output on the 550/555 is not affected by these switch settings. It is set to eight colors, with no blinking, at all times.

### Using The COLOR Command

You can specify either or both colors at one time with the syntax:

COLOR foreground number, back-  
ground number

The foreground and background numbers may be from zero to seven.

*(Fred Blechman, an acknowledged authority on home computers, has written several articles and books related to microcomputers. He is self-taught in electronics and computer BASIC programming and specializes in writing for beginners. This article is based on material from a book by the author, Sanyo MBC-550/555 Beginner/Intermediate Guide, now available from Blechman Enterprises, 7217 Bernadine Ave., Canoga Park, CA 91307; 818-346-7024.)*

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as shown in the first column of Table 1. If you simply use color four, you'll get red printing (or graphics dots) from then on until the next COLOR command. If you use COLOR ,4 (no number before the comma) then you'll have a red background until the next COLOR command. Notice that the color does not affect what is already on the screen, only what follows. To change the entire screen to the new colors, type CLS and press ENTER (or just press the PF1 key) when the Ready prompt is on the screen, or put CLS in the program at the appropriate place.

If you "play" with the COLOR command very much, you are bound to find yourself with what looks like a blank colored screen (except for the cursor), even though something should be displayed there. The cursor moves when you type, but you can't see what you're typing. You have probably gotten the foreground and background colors the same! To escape from this condition, type COLOR 2,0 (even though you won't see your typing) and press ENTER, then clear the screen with CLS or the PF1 key.

### Only Two Numbers

The IBM PC, and some other popular microcomputers, allow some other parameters to be used with the COLOR command, and you may see COLOR in some program listings for the IBM PC with three numbers after it. Sanyo BASIC will accept only two, and any more will cause a "Syntax error."

### COLOR Palette

Listing 1 produces all of the available

colors on either a monochrome display (with DTS-4 set to the color mode) or a color display. Actually, since the background is black, you won't see COLOR 0, since that's printing black-on-black.

Listing 2 will give you all the possible combinations of foreground and background colors. When you run this you'll see the text printed in the foreground color, on the background color. Notice that zero on zero, one on one, two on two and so forth, appear only to show the background color. Since the "ink" is the same as the "paper," you can't see the printing.

There are many useful combinations. Six on one is popular, zero on six or seven are probably the most readable, and two on zero is the default value.

### Block Graphics

Although you probably won't use them much, simple low-resolution "block graphics" can be used to create images on the screen. The Sanyo has limited block characters compared to some micros, but has far superior high-resolution graphics.

Each block character occupies a regular character space, so the "resolution" is 80 across and 25 down, with the upper-left corner designated 1,1 — the same as the LOCATE command.

Block graphics characters are obtained from the keyboard when the GRAPH key is lighted. You can also call them by their CHR\$ number. CHR\$ numbers from 176 to 223 represent lines, dots and blocks. You can place any of these characters anywhere on the screen with PRINT statements.

### COLOR Mosaic

Listing 3 illustrates a program that randomly sets values for location variables: R for "row," C for "column" and B for "block" color. It then prints CHR\$(219) — a solid block — in that location.

Notice that in Line 30 the random values for R and C have been incremented by one, to avoid a zero value, which would cause an error with the LOCATE command.

Also, the purpose of Line 40 is to avoid attempting to PRINT in the extreme lower right corner of the screen, since that would force a line feed that would scroll the screen up one line.

To eventually eliminate all black spaces (except location 25,80), change the 7 at the end of Line 30 to 6+1. If you want a really wild-looking display, composed completely of the graphics characters between CHR\$(176) and CHR\$(233), inclusive, change the CHR\$(219); at the end of Line 60 to CHR\$(176+RND(1)\*47);.

### Combining Shapes

These blocks can be combined, just like text, in PRINT statements, or assembled into strings and then PRINT-ed, to make borders. Listing 4 is an example of a screen heading with a double-line border and regular text inside.

In order to make a listing on a printer, I used the CHR\$ numbers to identify the characters, since my printer does not have these characters in its character set. When you type in this program you can type in the characters directly from the keyboard, in the GRAPH mode.

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**Listing 1. All the COLORS**

```

10 CLS
20 FOR C=0 TO 7
30 COLOR C
40 PRINT "This is color ";C;
50 PRINT STRING$(63,219);
60 NEXT
70 PRINT
100 FOR C=7 TO 0 STEP -1
110 COLOR C
120 PRINT "This is color ";C;
130 PRINT STRING$(63,219);
140 NEXT
200 COLOR 2

```

**Listing 2. All the COLOR combinations.**

```

100 CLS
110 FOR F=0 TO 7
120 FOR B=0 TO 7
130 COLOR F,B
140 PRINT " ";F;"on";B;" ";
150 NEXT B
160 PRINT
170 NEXT F
180 COLOR 2,0
190 END

```

**Listing 3. COLOR mosaic.**

```

10 REM * Block Graphic Color Mosaic *
20 CLS
30 R=RND(1)*24+1:C=RND(1)*79+1:B=RND(1)*7
40 IF INT(R)=25 AND INT(C)=80 THEN GOTO 30
50 COLOR B
60 LOCATE R,C:PRINT CHR$(219);
70 GOTO 30

```

**Listing 4. Borderline graphics.**

```

10 A$=CHR$(201)+STRING$(58,CHR$(205))+CHR$(187)
20 B$=CHR$(186)+STRING$(58,"")+CHR$(186)
30 C$=CHR$(200)+STRING$(58,CHR$(205))+CHR$(188)
100 CLS:PRINT TAB(10) A$
110 FOR X=1 TO 5:PRINT TAB(10) B$:NEXT
120 PRINT TAB(10) C$
200 LOCATE 3,20:PRINT" This is a sample of the manner in which";
210 LOCATE 4,20:PRINT"you can draw a border with graphics symbols";
220 LOCATE 5,20:PRINT" and then fill it in with some text.....";
230 LOCATE 22,1

```

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# The-First-Great soft sector One-Liner Contest

**H**ere we are again with more winners of The First Great SOFT SECTOR One-Liner Contest. The authors of these winning entries will receive a copy of the August edition of SOFT SECTOR ON DISK.

To briefly restate the rules of the contest, begin the program with the number one and end it in a single line. Anything else goes. Entries will be accepted in either Sanyo BASIC or GW-BASIC. Include a printed listing, a title for the program, and a short explanation of what it does. Send it to The First Great SOFT SECTOR One-Liner Contest, P.O. Box 385, Prospect, KY 40059.

★ ★ ★ ★ ★

## SHELL

Here is my entry in the one-liner contest. Written in GW-BASIC for the 550/555 equipped with a Video RAM Board, it's about the most powerful thing I could think of doing in a single line of BASIC.

With BASICA.EXE, COMMAND.COM and all of the WordStar files on the disk in drive A, while working in BASIC enter and run the following line:

0 SHELL "WS"

While this program example is obviously an oversimplification, the SHELL command in GW-BASIC allows the programmer to access the power of MS-DOS from within a BASIC program without losing variables or program control.

Don Hergert  
San Bernardino, CA

★ ★ ★ ★ ★

## XOR BOX

Here is my entry for "The First Great SOFT SECTOR One-Liner Contest." The program, which I call XORBOX, creates an astounding graphics display that lasts for about nine minutes. The program demonstrates a unique method of "bouncing" objects without using IF/THEN statements. XORBOX was written in Sanyo BASIC and is well worth the minimal effort to key it in.

```
1 X=6:Y=2:DX=4:DY=2:DIM A$(95):LINE(10,
)-(50,26),,BF:GET(10,6)-(50,26),A$:CLS:
HILE INKEY$="":DDY=(Y>175)*4:DDY=DDY+(Y
2)*-4:DY=DY+DDY:DDX=(X>595)*2:DDX=DDX+(X
<4)*-2:DX=DX+DDX:X=X+DX:Y=Y+DY:PUT(X,Y),
A$,XOR:WEND
```

Greg Lan  
Willard, MO

★ ★ ★ ★ ★

## RINGS OF POWER

This program draws six rings. Each ring is drawn by rotating lines in an oval. The program runs forever and must be exited by hitting the BREAK key. It has an initialization phase that executes once and a body that is repeated forever.

```
1 IF K=0 THEN COLOR R,R+1:CLS:K=1:GOTO 1
ELSE LINE(D+100+50*SIN(X),100+50*COS(X)
)-(D+100+50*SIN(Y+1.3),100+50*COS(Y+1.3)
),PSET:X=X+.2:Y=Y+.2:IF Y>12 AND D<540 T
HEN D=D+90:X=0:Y=0:GOTO 1 ELSE IF D<540
THEN 1 ELSE K=0:Y=0:D=0:R=(R+1) MOD 6 :G
OTO 1
```

John C. Hensen  
Weidman, MI

Continued on page 76

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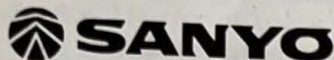
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# INPUT/OUTPUT

TIM PURVES

Soft Sector Contributing Editor

**Q.** I acquired a screen dump program from my local users group. It was reportedly written by Mark Zeiger of Sanyo for the Epson MX-100 and the Okidata 83A. I have an Okidata 92 and the program will not dump the screen. I suspected the problem to be an invalid lead-in control code or a line feed problem, but the Okidata technicians say that the lead-in codes are the same for both the 83A and the 92.

Harry Cameron  
Cleveland, OH.

**A.** I am not very familiar with the Okidata printers and their graphics modes. I seem to remember that they don't have a high-resolution mode. At any rate, the "public domain" screen dump written by Mark Zeiger only prints the contents of the green screen. There are several others commercially available, and a couple other Public Domain screen dumps that will "texture" the output based on the colors on the screen.

**Q.** Can you give me more information about the CHKDSK program. There doesn't seem to be complete information on it in the MS-DOS reference manual. When I enter a command such as CHKDSK filename.ext, I get a message to the effect of "All specified file(s) are contiguous" or "Filename.ext contains x non-contiguous blocks."

Ann Tomlinson  
Rochester, MI

**A.** This format is used to see if the specified files are sequential on the disk. It can be useful to know that a database is not scattered around on the disk. If a file is scattered around, it can increase the time required to access the data in the file. The best way to make a file contiguous is to copy it to a freshly formatted disk.

The available switches on the CHKDSK program are as follows for MS-DOS 2.11:

```
CHKDSK [d:][filemask] [/f] [/v]
```

d: is the disk drive name to check  
filemask is the file or files to check; multiple files require you to use a wild-card mask.

The valid switches are:

/f Fix the File Allocation Table (FAT) if errors are found.

/v List each file and subdirectory as it is checked.

Notes:

On MS-DOS 1.25, the FAT table and directory are fixed without operator intervention. On MS-DOS 2.11, the CHKDSK program will ask for permission to fix the FAT table or directory. However, it will not fix anything if the /f is not specified, it will only go through the motions. If a filemask is specified, the file or files that match the filemask will be checked to see if they are stored contiguously.

**Q.** I was fascinated to find that J. Weaver's WizStar program uses a very short machine language program to access the keyboard. If I did my detective work correctly the assembly program would be as follows:

```
xor ah,ah  
int 16h
```

My question is: What does the int 16h do? Also, could I use this to disable the BREAK key in BASIC?

Chris Bowman  
Oak Brook, IL

**A.** The int 16h is used to provide a compatible interface to the keyboard in all IBM BIOS-compatible machines. In the IBM there are three different functions available in int 16h; on the Sanyo only two are implemented. Rather than get into a lengthy discussion of how interrupt "int" functions work, I will just explain the int 16h functions. They are as follows:

Function Summary:

AH:=0Read\_Keyboard (destructive, with wait)  
AH:=1Scan\_Keyboard (non destructive, no wait)  
AH:=2Get\_current\_Shift\_status (IBM and true compatibles)

(Tim Purves is an expert on the Sanyo 550/555 series computers and is an experienced programmer in assembly code, PASCAL, C and BASIC. He is available to answer any technical questions that the readers of SOFT SECTOR might have. All questions should be addressed to SOFT SECTOR, P.O. Box 385, Prospect, Ky. 40059.)



Read\_Keyboard:

Entry:

AH:=0

INT 16h

Exit:

AL:=ASCII value of key

AH:=Keyboard Scan code (emulated with ROM table on Sanyo)

Scan\_Keyboard (non-destructive, look ahead):

Entry:

AH:=1

INT 16h

Exit:

Z:=No key entry available

NZ:=A key is available (and still is)

AL:=ASCII value of key

AH:=Keyboard Scan code (emulated with ROM table on Sanyo)

Get\_current\_Shift\_status (IBM and true compatibles):

Entry:

AH:=2

INT 16h

Exit (Bit Set=TRUE, Reset=FALSE):

Bit 7:=Insert state

Bit 6:=CAPS LOCK engaged

Bit 5:=NUM LOCK engaged

Bit 4:=SCROLL LOCK engaged

Bit 3:=ALT key pressed

Bit 2:=CTRL key pressed

Bit 1:=Left SHIFT pressed

Bit 0:=Right SHIFT pressed

To disable the break key in Sanyo BASIC, add a line that reads:

CONT,N

This will cause Sanyo BASIC to ignore the BREAK key. In GW-BASIC the BREAK key doesn't work anyway; you must hit CONTROL-BREAK.

**Q.** I have purchased a Sargon III chess game for the IBM PC. I would like it to run on the Sanyo with a video board.

David Green

Thatcher, AZ

**A.** The question of running IBM programs on the Sanyo is one that many people ask. My best advice is to take the program as a whole and analyze what functions don't work. Next, contact the manufacturer of the program and present them with an accurate log of problems. Don't merely say, "It doesn't work."

If this method fails, you must dig deep. Most of the programs for the IBM were written in a high level language and compiled. As an avid user and writer of compilers, I can say that the code a compiler generates is somewhat obscure to a person who is not familiar with properties of the compiler used. This can lead to an impenetrable program that only the original author can fix with the high-level source. Even programs written in machine code can get very involved, as some machine code programmers can get as tricky as the best of compilers. The best thing to do is to look for machine-dependent routines (direct port input, calls to ROM, accesses to ROM tables, etc.).

Also, a 256K Sanyo doesn't have the same free memory as a 256K IBM. The Sanyo loads 12K of BIOS from the disk; the IBM has this in high memory ROM. The Sanyo has a 16K video screen in user memory; the IBM's is in high memory. Therefore a 256K Sanyo will have at least 28K less memory than a 256K IBM. This alone can keep a program from running.

All in all, the best way to get an IBM PC-specific program running is to go to the original author. He or she knows the machine-dependent parts. In most all the programs that I have written, the machine-dependent parts go in one spot so they can be "ported" to a new machine as quickly and easily as possible.

**Q.** Did Sanyo, like IBM, limit BASIC programs to only 64K? On my 256K Sanyo I get a 130K free message in

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BASIC when I load it. However, when I load or key in more than 64K of program lines I get an "Out of memory" error.

Francis Kalinowski  
Orlando, FL

**A.** Sanyo BASIC allocates up to 64K to each of the work areas used by BASIC: one for program text, one for simple variables, one for string variables, and other areas for array variables. However, none of the areas can be larger than 64K. The only exception is for arrays. No single array can be larger than 64K, but you can have multiple 64K arrays. See earlier issues of SOFT SECTOR for the description of the CLEAR command to see how to clear memory for extra arrays.

**Q.** Will the Microsoft Macro Assembler run on the Sanyo?

V.R.  
Fallon, NV

**A.** I am currently using the Microsoft Assembler (MASM), Version 3.0., and it works just fine. The only requirement is MS-DOS 2.11, which everyone should be running by now anyway, and at least 192K free memory.

**Q.** I am unable to make ThinkTank self-booting because the program comes supplied with the IBM BIOS and DOS

in hidden files. One of my attempts to replace the hidden files with the Sanyo BIOS resulted in erasing the protection scheme, thus rendering the program disk worthless. My question: Is there a way to remove the IBM BIOS and DOS files and replace them with the Sanyo BIOS files?

Harry Cook  
College Park, MA

**A.** Depending on where the protection scheme was located, you could in theory add the Sanyo BIOS files onto the disk. However, the BIOS files must be contiguous on the disk and the disks only have space reserved for the IBM BIOS. Since the Sanyo BIOS is twice the size of the IBM BIOS, getting the files to fit would be quite a feat.

Again, in theory, you could copy all the files off the protected disk to another disk, purge all the files off the protected disk (including the hidden files), copy the Sanyo bootstrap over to the protected disk and copy the Sanyo BIOS and DOS over. Now copy all the original files back onto the disk.

This would give you a bootable, protected disk for the Sanyo. However this would only work if the protected tracks were not needed by the files on the disk. Typically on the IBM, the protected tracks are placed right after the sectors used by the hidden files. Since the Sanyo files are larger, they would overwrite the protected tracks.

The best way around this is to boot up the Sanyo DOS. After the system is loaded, remove the disk and replace it with the disk you wish to run.

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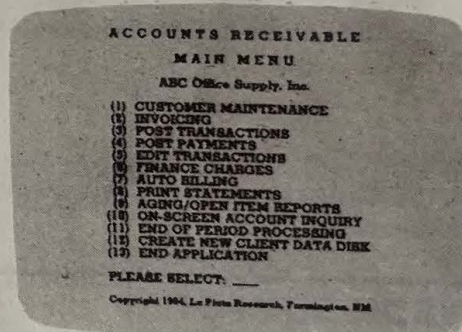
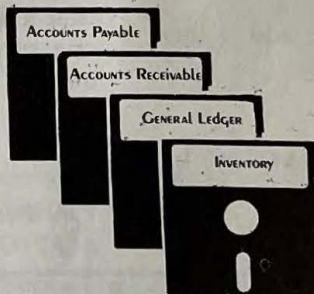
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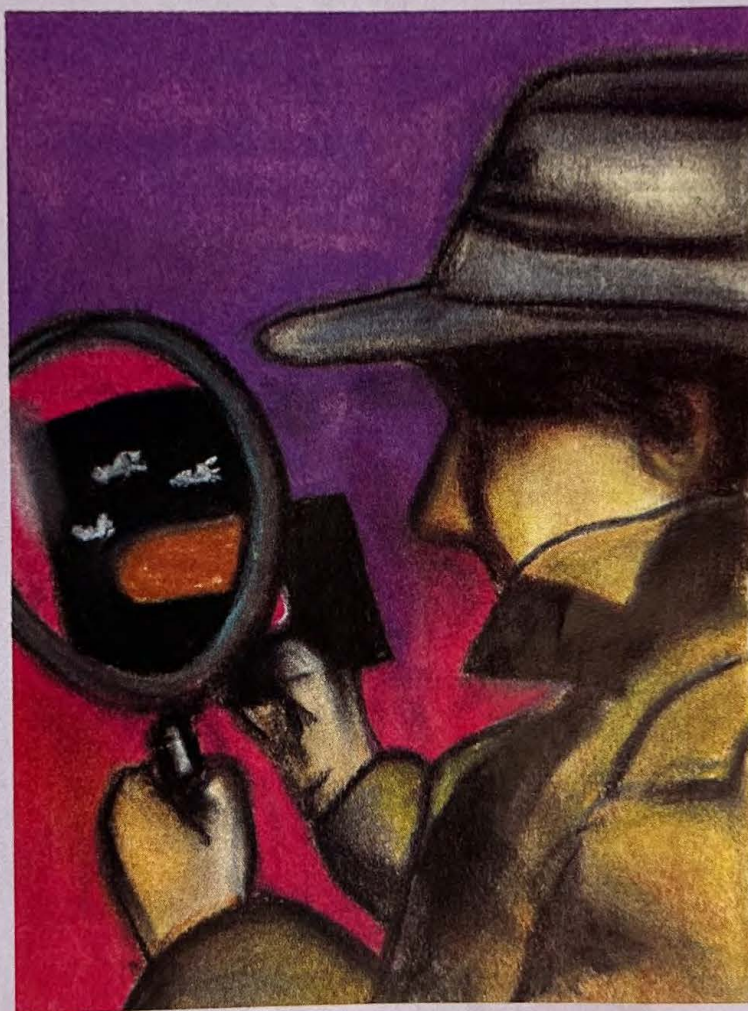
# Reclaiming Those Lost Files

By Chuck Kincade

I am sure that most of you have experienced that sinking feeling when you realize that you just deleted a file you had spent several hours writing and debugging. If you're lucky, you have a backup, but usually that, too, was deleted with the original. The only recourse is to reenter the entire file from a listing and start the debugging again. The *Reclaim* program gives you another option — the ability to recover those precious bytes of your deleted program.

In order to understand how this recovery is possible, a few words about how DOS manages the disk input/output will remove some of the mystery. Each double-density disk is made up of 40 concentric rings, or "tracks." Each track is then divided into either eight or nine "sectors," with each sector containing 512 bytes of information. For single-sided disks, this results in 320 sectors and 160K or 360 sectors and

*(Chuck Kincade holds a B.S. in electrical engineering and has been developing simulations and analytical software in FORTRAN and assembly language for over 20 years. He has been working with the Sanyo 550 series for more than a year now and is currently the editor of the Sanyo SIG of San Diego Newsletter. He may be contacted at 11070 Polaris Drive, San Diego, CA 92126; 619-271-1793.)*



180K per disk. Double-sided disks, of course, have twice this capacity.

DOS accesses the disk in blocks of data called "allocation units," or "clusters." Each cluster corresponds to one sector for single-sided disks and two sectors for double-sided disks. There are then either 320 or 360 clusters per disk.

The File Allocation Table (FAT) occupies a portion of the disk and contains one 12-bit entry for each

cluster on the disk. When a new file is opened, DOS starts storing the data in the first available cluster and continues writing the file one cluster at a time. Clusters previously allocated to existing files are skipped, so data may not be written to sequential clusters.

The directory contains the cluster number of the first cluster in the file and DOS chains the clusters together by successively storing the number of the next cluster in the file into the FAT. The FAT entry for the final cluster in the file has a special code to terminate the chain.

When DOS deletes a file, it replaces the first byte in the file's directory entry with a special code (E5 Hex, 229 decimal) and then clears that file's entries in the FAT, freeing those clusters for use by another file. The data within those clusters, however, remains undisturbed and can be accessed by a

program such as *Reclaim*.

*Reclaim* is written in BASIC and will recover a file under either MS-DOS 1.25 or 2.11. The program is intended for ASCII text files, but can be used to recover binary files with some slight modification. It sequentially reads each data cluster from the disk, displays it on the screen, asks if the cluster is a part of the lost file, and, if so, saves the cluster number for later use.

The program gives the user two passes through the file, the first to



identify all possible clusters that could belong to the file and a second to trim the file of look-alike data clusters. After the first pass, the user has the option to print on the printer for a closer examination of the saved clusters. The disk is then modified to place the reclaimed clusters into a logically contiguous order so that it may be edited by a text editor such as *EDLIN* or *WordStar*.

The BASIC feature that allows the file recovery is the ability to create random access files; that is, files that allow fixed-length records to be read or written in a non-sequential order. DOS calculates the proper disk sector to access using the record number and the fixed record length. When the random access file is closed, the file's length is computed from the largest record number written to it.

*Reclaim* opens a random access file, calculates the record number corresponding to the end of the free space, writes a short record to the end of the free space, and then closes the file. The program now has control of all free disk space. Since the data from the lost file is located somewhere in this new file, we can examine each cluster of data on the disk and select those clusters that are part of the lost file. This write operation does overwrite some of the data on the disk. The program minimizes the length of this record while keeping the maximum record number less than 32,767 bytes. The largest record length will be 12 bytes for a free space size of 360K.

The file recovery procedure is as follows: First, since the program reorganizes the clusters on the disk, be sure to do your reclamation on a copy of the disk rather than the original. Use *DISKCOPY* to make an exact, cluster-by-cluster copy of the original disk. This way you may recover several files if necessary, and you protect yourself in case of catastrophe. After you are satisfied that all files have been recovered, you may use the old disk as a backup.

The second step prior to running *Reclaim* is to determine the number of free bytes on the disk. Use the *DIR* command and record the value for later input to the program. If the value you enter is too small, you may not be able to recover your entire program.

You may now begin execution of the program with the command *BASIC RECLAIM.BAS*. The program will ask

you whether you performed the above two steps. If not, you may exit the program with an 'N' entry; otherwise, enter 'Y' to continue the reclamation.

The program then needs to know the format of the disk, either single- or double-sided. This information determines the number of 512-byte sectors per cluster. Once the format is entered, you may enter the name that the file will have upon exit from the program. A test is made to see whether that file already exists and you must try another filename if it does. A null entry — a carriage return — at the prompt will select the default filename of *RECLAIM.FIL*.

The remaining disk free space is then entered at the prompt. If you enter a value greater than the free space, an error message will be output and you have to try again. After this is entered, all of the disk free space will be allocated to your file. If you decide to exit the program at any time prior to the file

**"The final phase of the file reclamation consists of rewriting the clusters into a logically contiguous order . . ."**

reorganization, you may do so and restart the program at a later time.

The program will then sequentially display the cluster sequence number and the data in each cluster remaining on the disk and prompt you as to whether the cluster is a part of your file. During the display, the program scans each cluster for the BELL character (07) and replaces it with a NULL to keep the operation a little quieter. If you answer 'Y', the cluster number will be saved for the printing and final verification passes. An 'N' response will skip forward to the next cluster. A 'B' entry will skip backward to the previous cluster in case you goofed and a 'Q' entry will exit this pass and ignore all remaining clusters.

You will undoubtedly see many screens of gibberish. These are usually the remnants of data or executable files. If the recovery file was a *WordStar* file, you will see graphics characters interspersed among meaningful text. These characters usually occur at the end of each word and are used by *WordStar* for margin justification. Try to make as much sense out of the display as you can before skipping the cluster.

You may also see one or more seemingly identical clusters that appear to be from your file. These are usually old backups that were deleted as new versions were created. If there is any doubt as to which of these belong to your file, save them. You will have another opportunity to further edit your file.

The next step in the procedure allows you to print a hard copy of the saved clusters with their sequence numbers for closer examination prior to the final verification pass. If you want a listing, ready your printer and enter 'Y' to the prompt; otherwise, enter 'N' to skip the print option.

After the listing, you will have a final opportunity to review the clusters that were saved during the first pass. Only those clusters that were identified at that time will be displayed on the screen. As before, you may include or exclude each cluster in turn with a 'Y' or 'N' response to the prompt. The 'B' option will go back to the previous saved cluster and 'Q' will exit this pass and ignore all remaining clusters.

At this point, all clusters from your file have been marked for inclusion but may be scattered throughout the disk. The final phase of the file reclamation consists of rewriting the clusters into a logically contiguous order to allow editing and to free the remaining unused disk space. During the rewrite, each cluster is scanned for the end-of-file (EOF) code (1B Hex, 27 decimal) and replaced by a null. This process removes any vestigial EOFs that may have been left over from previous files.

The program should not be aborted during this phase of recovery. If an error occurs, however, no data from your recovered file will be lost, but you may have to delete the file and restart the program. Remember that the cluster numbers may be different than before.

You will notice in lines 2040 through 2110 that the file is actually *KILLED* and reopened once the reordering is completed. This process chains only those selected clusters into the reclaimed file and frees the unused disk space.

Your recovered file should now be edited with any text editor to remove the extraneous characters that were remaining in the last cluster. If you want to recover another file from the disk, you should save the previously recovered file on another disk, make another *DISKCOPY* of the original, and repeat the entire procedure.



The listing: RECLAIM.BAS

```

10 DEFINT I-N
20 DIM ISAVCLU(360)
30 NULCHR$ = CHR$(0) : BELCHR$ = CHR$(7) : EOFCHR$ = CHR$(26)
40 CLS
50 PRINT "File Reclamation Program - Copyright (C) 1985 by C. W. Kincade"
60 PRINT : PRINT
70 PRINT "This program will allow you to recover a file that was accidentally"
80 PRINT "deleted. The following items should be done before continuing:"
90 PRINT
100 PRINT "  1. Protect yourself by making a DISKCOPY of the disk that"
110 PRINT "      contains the file to be recovered. "
120 PRINT "  2. Use the DIR command to get the number of remaining free"
130 PRINT "      bytes on the disk."
140 PRINT : PRINT "Are you ready to continue? (Y/N): ";
150 '
160 A$ = INPUT$(1) : ' Read response from keyboard
170 IDX = FIX((INSTR("NnYy",A$)+1)/2) : ' See if it is a valid response
180 IF IDX=0 GOTO 160 : ' If invalid, go back for another
190 IF IDX=1 GOTO 2140 : ' If response is "N", exit program
200 '
210 ' Get type of disk from user
220 '
230 PRINT : PRINT : PRINT
240 PRINT "Is this a double-sided disk? (Y/N): ";
250 A$ = INPUT$(1) : ' Read response from keyboard
260 IDX = FIX((INSTR("NnYy",A$)+1)/2) : ' See if it is a valid response
270 IF IDX=0 GOTO 250 : ' If invalid, go back for another
280 '
290 ' Set disk constants according to type of disk
300 '
310 NBYTSEC = 512 : NBYTREC = 128 : BYTEMAX = 32256!
320 NBYTCLU = NBYTSEC*IDX : NRECCLU = NBYTCLU/NBYTREC
330 '
340 ' Get drive and name of lost file.
350 '
360 PRINT : PRINT
370 INPUT "Enter drive and name of lost file: [default RECLAIM.FIL] ",RECLMFIL$
380 IF RECLMFIL$="" THEN RECLMFIL$ = "RECLAIM.FIL"
390 '
400 ' Get the disk free space from the user
410 '
420 PRINT
430 INPUT "Enter the disk free space in bytes: ",FILESZ
440 '
450 LENREC = FIX((FILESZ+BYTEMAX-1!)/BYTEMAX) : ' Set record length to make
460 MAXREC = FIX(FILESZ/LENREC) : ' maximum record number < 32767
470 NCLUST = FIX(FILESZ/NBYTCLU) : ' Calculate number of clusters
480 '
490 OPEN "R",#1,RECLMFIL$,LENREC : ' Open the file as random access
500 IF LOF(1)=0 GOTO 550 : ' See if file already exists, jump if not
510 CLOSE #1 : ' It does exist, close it and print error
520 PRINT "ERROR -- File already exists. Use another name" : BEEP
530 GOTO 360
540 '
550 FIELD #1,LENREC AS RECFLD$ : ' Set up the I/O buffer

```



```

560 LSET RECFLD$ = EOFCHR$
570 ON ERROR GOTO 640
580 PUT #1,MAXREC
590 CLOSE #1
600 GOTO 770

```

```

:' Set an end-file in buffer
:' Set up error trap for file size
:' Write EOF to last record to allocate all
:' free space to this file and then close it

```

```

610 '
620 ' Error trap for file size
630 '

```

```

640 IF ERR<>61 GOTO 710
650 PRINT : PRINT "File size too large. Try again."
660 BEEP : CLOSE #1
670 RESUME 420
680 '

```

```

:' Was it DISK FULL error? If not, jump
:' Print error message
:' Close file and try again

```

```

690 ' Error trap for all other errors
700 '

```

```

710 ON ERROR GOTO 0 : ' Not DISK FULL error. Reset error trap and resume to
720 RESUME : ' have the error occur again so program will stop
730 '

```

```

740 ' All free disk space has been allocated. Begin the first pass to
750 ' display each cluster on screen and inquire whether it belongs to file
760 '

```

```

770 ON ERROR GOTO 0

```

```

780 IPRT = 0 : ' Set the write to screen flag

```

```

790 OPEN "R",#1,RECLMFIL$,NBYTREC : ' Re-open the file

```

```

800 FIELD #1,NBYTREC AS RECFLD$ : ' and define file buffer

```

```

810 FOR ICLUST=1 TO NCLUST : ' Go over all remaining clusters

```

```

820 PRINT : PRINT : COLOR 0,2 : ' Print cluster number in reverse video
830 PRINT USING "==== Cluster ### =====";ICLUST;

```

```

840 COLOR 2,0 : PRINT
850 GOSUB 2200

```

```

:' Read cluster from disk and write to the screen

```

```

860 PRINT : COLOR 0,2 : ' Ask if cluster belongs to lost file

```

```

870 PRINT USING "Is cluster ### a part of your file? (Y/N/B/Q) ";ICLUST;
880 COLOR 2,0

```

```

890 A$ = INPUT$(1) : ' Read response from keyboard

```

```

900 IDX = FIX((INSTR("NnYyBbQq",A$)+1)/2) : ' See if it is valid response

```

```

910 IF IDX=0 GOTO 890 : ' If invalid, go back for another
920 '

```

```

930 ' No Yes Back Quit

```

```

940 ON IDX GOTO 960, 990, 1020, 1060 : ' Jump according to valid response
950 '

```

```

960 ISAVCLU(ICLUST) = 0 : ' Cluster is not a part of the file. Clear index.
970 GOTO 1090
980 '

```

```

990 ISAVCLU(ICLUST) = ICLUST : ' Cluster is a part of file. Set index.
1000 GOTO 1090
1010 '

```

```

1020 ICLUST = ICLUST - 1 : ' Back up one cluster

```

```

1030 IF ICLUST<1 THEN ICLUST=1 : ' but don't go beyond beginning cluster
1040 GOTO 820
1050 '

```

```

1060 FOR I=ICLUST TO NCLUST : ISAVCLU(I) = 0 : NEXT I : 'Clear rest of indices
1070 GOTO 1140 : 'and exit this pass
1080 '

```

```

1090 NEXT ICLUST : ' End of first pass loop
1100 '

```

```

1110 ' The clusters have been marked for recovery.
1120 ' Write them to the printer if desired.
1130 '

```

```

1140 PRINT : PRINT

```



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```

1150 PRINT "Do you want a listing of the saved clusters? (Y/N) ";
1160 A$ = INPUT$(1) : ' Read response from keyboard
1170 IDX = FIX((INSTR("NnYy",A$)+1)/2) : ' See if it is a valid response
1180 IF IDX=0 GOTO 1160 : ' If invalid, go back for another
1190 '
1200 IF IDX=1 GOTO 1310 : ' If the answer was "N", skip the print section.
1210 IPRT = 1 : ' Set the write to printer flag
1220 FOR ICLUST=1 TO NCLUST : ' Go over all clusters in the file
1230 IF ISAVCLU(ICLUST)=0 GOTO 1260 : ' but skip the unmarked ones
1240 LPRINT : LPRINT USING "==== Cluster ### =====";ICLUST
1250 GOSUB 2200 : ' Read and write this cluster to the printer
1260 NEXT ICLUST : ' End of print loop
1270 LPRINT CHR$(12) : ' Write a form-feed to the printer to eject the page
1280 '
1290 ' The print phase is completed. Now for the final verification pass.
1300 '
1310 PRINT : PRINT
1320 PRINT "We are now ready to make the final pass in recovering the file."
1330 PRINT "Only those clusters that were saved on the first pass will be"
1340 PRINT "listed to the screen. You will be have a final opportunity to save"
1350 PRINT "or delete clusters from your file. Press any key to continue...";
1360 A$ = INPUT$(1)
1370 '
1380 IPRT = 0 : ' Set the write to screen flag
1390 FOR ICLUST=1 TO NCLUST : ' Go over all clusters in the file
1400 IF ISAVCLU(ICLUST)=0 GOTO 1680 : ' but skip the unmarked ones
1410 PRINT : PRINT : COLOR 0,2 : ' Print cluster number in reverse video
1420 PRINT USING "==== Cluster ### =====";ICLUST;
1430 COLOR 2,0 : PRINT
1440 GOSUB 2200 : ' Read cluster from disk and write to the screen
1450 PRINT : COLOR 0,2 : ' Inquire whether cluster is a part of the lost file
1460 PRINT USING "Is cluster ### a part of your file? (Y/N) ";ICLUST;
1470 COLOR 2,0
1480 A$ = INPUT$(1) : ' Read response from the keyboard
1490 IDX = FIX((INSTR("NnYyBbQq",A$)+1)/2) : ' See if it is valid response
1500 IF IDX=0 GOTO 1480 : ' If invalid, go back for another
1510 '
1520 ' No Yes Back Quit
1530 ON IDX GOTO 1550, 1580, 1610, 1660 : ' Jump according to valid response
1540 '
1550 ISAVCLU(ICLUST) = 0 : ' Cluster is not a part of the file. Clear index.
1560 GOTO 1680
1570 '
1580 ISAVCLU(ICLUST) = ICLUST : ' Cluster is a part of file. Set index.
1590 GOTO 1680
1600 '
1610 ICLUST = ICLUST - 1 : ' Back up one cluster
1620 IF ICLUST<1 THEN ICLUST=1 : GOTO 1400 : ' but don't go beyond beginning
1630 IF ISAVCLU(ICLUST)=0 GOTO 1610 : ' Loop if not a saved cluster
1640 GOTO 1410 : ' Go back for previous cluster
1650 '
1660 FOR I=ICLUST TO NCLUST : ISAVCLU(I) = 0 : NEXT I : 'Clear rest of indices
1670 GOTO 1730 : 'and exit this pass
1680 NEXT ICLUST : ' End of verification pass
1690 '
1700 ' All clusters have been marked for reclamation. Rewrite the file
1710 ' to make the clusters logically contiguous.
1720 '
1730 PRINT : PRINT

```



# A-OK Computers

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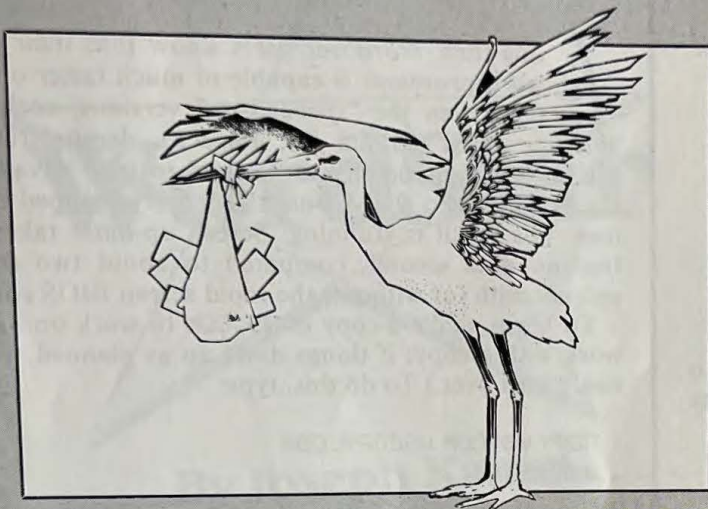
```

1740 PRINT "We are now rewriting the file to make the clusters"
1750 PRINT "logically contiguous. Please wait."
1760 '
1770 NSAVCLU = 0 : FILESZ = 0 : ' Initialize no. of saved clusters & file size
1780 FOR ICLUST=1 TO NCLUST : ' Go over all clusters in the file
1790 IF ISAVCLU(ICLUST)=0 GOTO 1990 : ' but skip the unmarked ones
1800 NSAVCLU = NSAVCLU + 1 : ' Increment no. of saved clusters
1810 FILESZ = FILESZ + NBYTCLU : ' and file size
1820 PRINT USING "Saving New Cluster ###. File Length=#####";NSAVCLU;FILESZ
1830 IREC = NRECCLU*(ICLUST-1) : ' Calculate marked cluster record number
1840 NREC = NRECCLU*(NSAVCLU-1) : ' Calculate new cluster record number
1850 IF IREC=NREC GOTO 1990 : ' If they're the same, don't overwrite
1860 FOR JREC=1 TO NRECCLU : ' Go over all records in cluster
1870 IREC = IREC + 1
1880 GET #1,IREC : ' Read a marked record
1890 RECORD$ = RECFLD$ : ICHR = 1 : ' Store record in working string
1900 IEOF = INSTR(ICHR,RECORD$,EOFCHR$) : ' See if there is an EOF in record
1910 IF IEOF=0 GOTO 1950 : ' Go write the record if none
1920 MID$(RECORD$,IEOF,1) = NULCHR$ : ' Replace the EOF with NUL (00hex)
1930 ICHR = IEOF + 1
1940 IF ICHR<=NBYTREC GOTO 1900 : ' Go back and look for another EOF
1950 LSET RECFLD$ = RECORD$ : ' Save the record back in the buffer
1960 NREC = NREC + 1
1970 PUT #1,NREC : ' Write the record in logically contiguous order
1980 NEXT JREC : ' Go back for next record in this cluster
1990 NEXT ICLUST : ' End of rewrite pass
2000 CLOSE #1 : ' The file has been rewritten. Close it.
2010 '
2020 ' Now we can free the unused disk space
2030 '
2040 LENREC = FIX((FILESZ+BYTEMAX-1)/BYTEMAX) : ' Calc the record length and
2050 MAXREC = FIX(FILESZ/LENREC+1) : ' record number to terminate the file
2060 KILL RECLMFIL$ : ' Delete the file
2070 OPEN "R",#1,RECLMFIL$,LENREC : ' Re-open the file
2080 FIELD #1,LENREC AS RECFLD$ : ' and define the terminating buffer
2090 LSET RECFLD$ = EOFCHR$ : ' Store an EOF in the buffer
2100 PUT #1,MAXREC : ' and write it to the file
2110 CLOSE #1 : ' Now close the file
2120 '
2130 PRINT "File recovery has been completed. You may now edit it as normal."
2140 END
2150 '
2160 ' This subroutine reads and prints each cluster either to the screen or
2170 ' to the printer according to the value of IPRT. If IPRT=0, the cluster
2180 ' is written to the screen, otherwise it is printed.
2190 '
2200 IREC = NRECCLU*(ICLUST-1) : ' Calculate start record number for cluster
2210 FOR JREC=1 TO NRECCLU : ' Loop over number of records per cluster
2220 IREC = IREC + 1 : ' Get current record number
2230 GET #1,IREC : ' and read the record from the disk
2240 RECORD$ = RECFLD$ : ICHR = 1 : ' Put record in working string
2250 IBEL = INSTR(ICHR,RECORD$,BELCHR$) : ' Search for BELL character
2260 IF IBEL=0 GOTO 2300 : ' If not found, go print record
2270 MID$(RECORD$,IBEL,1) = NULCHR$ : ' Replace bell with NULL byte
2280 ICHR = IBEL + 1 : ' Increment pointer
2290 IF ICHR<=NBYTREC GOTO 2250 : ' If record not finished, go back
2300 IF IPRT=0 THEN PRINT RECORD$; ELSE LPRINT RECORD$; : ' Print record
2310 NEXT JREC : ' Do next record in this cluster
2320 RETURN

```



# SUBMITTING MATERIAL



Contributions to **SOFT SECTOR** are welcome from everyone. We like to run a variety of programs which will be useful/helpful/fun for other Sanyo owners.

• **FORMAT:** Unless the program accompanying your submission is less than 10 lines, we must have the program itself on disk. We will print out the listing to our specifications. We simply cannot take the time to key in (and debug our typing errors) material which is longer than that. Editorial copy can also be included on disk, using any of the word processors currently available for the Sanyo 550, 555 or 775. However, please also include a double-spaced hard copy of your editorial material and hard copy of your program listing. Please do not send text in all capitals. Use upper- and lowercase. While it is a big help to us in typesetting for you to send your article saved on disk using the ASCII option, it is not mandatory. But we must have, at the very least, a double-spaced hard copy of the article.

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And now, two handy little items just for owners  
of the Video RAM Board.

# Enlarging The Cursor

By Truman Krunholz

**A**nyone using the Video RAM Board with their Sanyo 550/555 can create and use the following eight-byte program to enlarge the cursor.

```
B4 01      MOV    AH,01
B9 06 00    MOV    CX,0006
CD 10      INT     10
C3         RET
```

The program may be written using DEBUG by entering the code at CS:0100 with either the A or E commands. Then set the CX register to eight with R CX and name it as a .COM file using the N command. Save the file to disk with W and quit DEBUG with Q.

The value of the original cursor is 0607. The first byte is the top line for the cursor and the second byte is the bottom line.

Some programs such as Borland's *Sidekick* will change the cursor back to the original. You can either run this little program again to bring back the block cursor, or search with DEBUG for the routine in the offending program and modify it. On my copy of *Sidekick*, the two bytes to change are at CS:03DA when loaded with DEBUG. Change the 07 to 06 and the 06 to 00. Then rewrite the file to disk.

In the case of GW-BASIC on the Sanyo, the cursor is really small. I used *SM*, from the *Norton Utilities*, to change it to a block cursor. The byte to change is in the second line of the 49th sector of BASIC.A.EXE. Look for the following series of bytes and change the 27 to 20:

```
06 06 06 07 03 06 06 D1 09 00 C7 06 C4 07 07 '27' EB
3B 00 C7 06
```

If BASIC.A.EXE is loaded using DEBUG, this code appears at CS:5E14.



# Blitz Star

By Charles Annis

**L**ong-time *WordStar* users know that their favorite word processor is capable of much faster operation than even the "speeded-up" versions, such as the *WizStar* patch (March '85, Page 8), demonstrate. The following simple patch can be used to take advantage of the Sanyo Video RAM Board's memory-mapped capabilities. The result is stunning: Screen up-dates take only a fraction of a second, compared to about two (or five) seconds with (or without) the rapid screen BIOS routines.

To begin, make a copy of WS.COM to work on. (Always work with a copy; if things don't go as planned, you can easily start over.) To do this, type:

```
COPY WS.COM WSCOPY.COM
and ENTER
```

*WordStar* has an internal flag at location 2B0 Hex which, when non-zero, tells it that it's using a memory-mapped display. We'll use DEBUG to patch this location to FF Hex.

Call up the debugger and edit your new WSCOPY by typing:

```
DEBUG WSCOPY.COM and ENTER.
```

To make the change, type:

```
E 2B0 and ENTER
```

DEBUG will respond by showing what's currently at this location (namely, 00) and await your entry to change it. Type:

```
FF and ENTER
```

The DEBUG prompt '\_' returns and we're ready to save the *BlitzStar* patch.

To write the change to the disk, type W and ENTER and conclude (quit) the session by typing Q and ENTER.

Now let's check it out. Summon *BlitzStar* by typing:

```
WSCOPY and ENTER
```

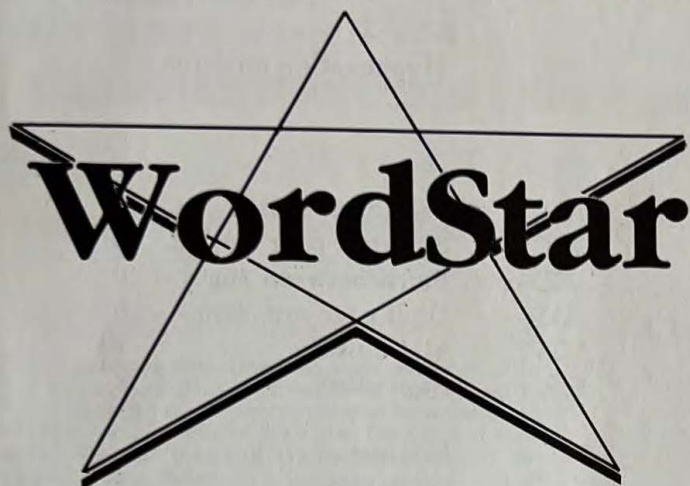
Edit a long document — one with two or more pages. Type ^QC to bring the entire document into the buffers, then page up and back. Move some paragraphs around and experiment a little. After you're satisfied that it's working as advertised (*fast*), exit without saving your experimentations. Now rename WSCOPY.COM to WS.COM and your new *BlitzStar* patch is complete.





the rate we've been patching our favorite word processor, we may soon have to call it 'MutantStar.'

# On Customizing



By Joseph Kattan

As most of you already know, many features of *WordStar* may be customized to fit your special needs using the *Install* program supplied by Sanyo. There are two problems with the *Install* program, however. First, the program is awfully slow and makes you go through a seemingly endless array of menus to get to the change you want to make. Second, and more important, there are many changes that cannot be made through *Install*.

There is a way to make many more changes to *WordStar* than those on the *Install* menu using the DEBUG program in the Sanyo MS-DOS distribution disk. You don't need to know anything about assembly language or debugging to use DEBUG if you follow these directions very carefully.

The first and most important instruction is to make a copy of your *WordStar* working disk and put that original away in a safe place where DEBUG cannot zap

it. You should plan to work with the copy only. You only need the *WS.COM* file for patching with DEBUG, but you should also copy the support files (*WSMSG.SVR* and *WSOVLY1.SVR*) to your destination disk if you intend to make it your working *WordStar* disk.

Second, use the DEBUG program supplied with the DOS version you plan to use when installing and operating *WordStar*. In other words, if you are using MS-DOS 2.11, don't use the DEBUG program that came with MS-DOS 1.25 or vice versa.

If you have only a single disk drive, after you have copied *WS.COM* and the support files to your new disk, copy the DEBUG program to the same disk. Once you have both *WS.COM* and DEBUG on the same disk, type *DEBUG WS.COM*.

If you have two disk drives, insert DEBUG in drive A and *WS.COM* in drive B and type *DEBUG B:WS.COM*. DEBUG is now ready to accept your patches. The patches are hexadecimal values that tell *WordStar* the default condition of certain program attributes. You can enter the Hex values in either uppercase or lowercase letters.

Suppose you want the DEL key to delete the character immediately above the cursor, rather than the character to the left of the cursor. After typing *DEBUG WS.COM*, type *E 71C* and hit the RETURN key. DEBUG should display *7F*. Enter *07*. You can then enter *W* and RETURN to write the changes you made to the disk and *Q* and RETURN to quit the DEBUG program. You may, however, stay in DEBUG and make additional patches.

A very useful patch for owners of letter-quality printers without sheet feeders resets the default in *WordStar* to pause between pages. After entering into DEBUG, as in the first example, enter *E 3CD* and hit RETURN. DEBUG will display *0*. Enter *FF* and RETURN. Then enter *W*, RETURN, and *Q*, RETURN, as in the first example.

If you frequently use ellipses, you may have a problem because *WordStar* may mistake ellipses for dot commands and the *“.”* command that tells *WordStar* to ignore the text on that line. You may change the dot command to another command by using DEBUG.

Type *E 395* and RETURN. DEBUG will display *2E*, the Hex code for the period mark. Type in the Hex code of the symbol that you want to use in lieu of the dot. The Hex codes for the keyboard characters may be found on pages 5-4 and 5-5 of the *Sanyo Operator's Guide*. For example, if you wanted the backslash mark (*\*) to be the dot command character, type in *2F*, the Hex code shown in the *Sanyo Operator's Guide*.

To get rid of the function key line at the bottom of the screen in *WordStar* and gain an extra line of text display on your monitor's screen, enter *E 024B* and RETURN. DEBUG displays *1B*. Enter *19* and RETURN. Now enter *E 5041* and RETURN. DEBUG displays *8D*. Enter *C3* and RETURN. Now enter *W* to write to disk and *Q* to quit DEBUG.

The following patches may be made the same way as those described above. To make them, enter *E* and the Hex number shown in the address column. An unpatched version of *WordStar* will display the value shown in the Default value column. You can change it to any

Joseph Kattan practices law in Washington, D.C.)



other permissible value by entering E, the Hex value, and then RETURN. Remember that DEBUG is not sensitive to whether a Hex value is in upper- or lowercase, so you can enter the values shown in either, as you prefer.

Where the permissible values shown are zero or FF, FF denotes true and zero false. Thus, FF for the insert mode

means that the insert mode is on when *WordStar* is booted up, and a zero means it is off. You can, of course, change the condition again within *WordStar* by pressing CTRL-V. The values shown here only affect the default condition of *WordStar* and save you the keystrokes of changing them manually from within *WordStar*.

As in the examples given above, when you are finished press W and RETURN and DEBUG will save your changes to disk. Your WS.COM file will be modified to incorporate your patches. If for any reason you don't want to save the changes you made, type Q, RETURN, and DEBUG will return you to the operating system.

Address	Function	Default	Values	38D	Suppress page break	FF	0 or FF
2DC	Default drive	0	0-1	38E	Line spacing	1	1 to 9
360	Default help level	3	1-3	395	Dot command		
362	Insert mode	FF	0 or FF		Character	2E	ASCII value in Hex
363	List directory	FF	0 or FF				
37F	Default left margin	0	Column number in Hex	39A	Hyphenation criterion	4	Number of spaces from right margin
380	Default right margin	40	Column number in Hex	3CB	Use form feeds	0	0 or FF
385	Word wrap	FF	0 or FF	3CC	Suppress page format	0	0 or FF
386	Justification	FF	0 or FF	3CD	Pause between pages	0	0 or FF
387	Variable tab	FF	0 or FF	3D3	Omit page numbers	0	0 or FF
388	Soft hyphen	FF	0 or FF	3D4	Microjustify	FF	0 or FF
389	Hyphen help	FF	0 or FF	37E	Page offset	8	Number of columns
38A	Show print ctrl	FF	0 or FF	747	Number of strikes for boldface	2	Number of strikes
38B	Ruler line	FF	0 or FF				
38C	Show page break	FF	0 or FF				



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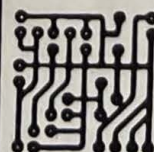
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The next time Hortence rolls across the coast, you can weather the storm in the comfort of your computer room.

# HURRICAN

By Robert

[Editor's Note: The program, as presented, requires more than 128K of memory to load when used with the 2.11 operating system and later versions of Sanyo BASIC, though it will run properly with BASIC Ver. 1.1. Under DOS 1.25 it will run properly with 128K and all versions of BASIC.]

With the approach of hurricane season, people living along the coast from Texas to the Carolinas will be keeping a watchful eye on tropical storm development. Most will do it the old fashioned way of plotting storm positions on a hurricane tracking chart supplied by the National Weather Service. But the privileged few who own the Sanyo MBC-550/555 can track tropical storm movements a better way, with the following *Hurricane Tracker* program.

*Hurricane Tracker* is a program that stores storm position data and displays it in either static or animated modes. The program is divided into three primary parts. The first part is data input in which you input storm "fix" (position) data obtained from The Weather Channel, local TV weather, or the National Weather Service via NOAA Weather Radio.

Five items are input for each fix position: the time of fix, date of fix, intensity of the storm, latitude in tenths of degrees and longitude in tenths of degrees. If the latitude or longitude is given in degrees and minutes, divide the minutes by 60 and add this to the whole degree value.

(Robert Craig, a captain in the U.S. Air Force, is currently working on a master's degree in meteorology at the Colorado State University. He has been programming as a hobby since 1982 and may be contacted at 1225 W. Prospect Road #F204, Fort Collins, CO 80526; 303-224-4079.)

Intensity is input as one of four categories which are explained on the opening display. In brief, winds over 73 mph are classified as a hurricane, winds over 39 mph are a storm, a closed circulation of winds less than 39 mph is a depression, and an area of organized convection that lasts for 24 hours is a wave. Usually, fix positions aren't available until the disturbance becomes a depression.

The second part of the program displays the storm track for a selected storm. The latitude and longitude are converted to screen coordinates and a path is calculated between each set of coordinates. Then a symbol representing the current intensity of the storm is moved along the path, leaving a color-coded track as it goes. The track colors are:

Red	—	hurricane
Yellow	—	storm
Light Blue	—	depression
White	—	wave

Movement is accomplished by the rapid writing and erasing of the storm symbol using GET and PUT statements.

The third part of the program displays all the tracks for a selected year. The display method is the same as used above.

The last part of the program allows the user to change the name of the storm. This is necessary since tropical storms are not named officially until they reach storm strength (winds greater than 39 mph). Depressions are given only numbers.

The program was written on an MBC-555 with MS-DOS 2.11 and 256K of memory. The manual says you must have 256K for GET and PUT routines, but since the ones used in this program are small (they don't use much memory), you should be able to run this on a 128K machine. The program is written for a color display and may need some



modifications to run on a monochrome monitor. Also, those of you who have compromised the Sanyo's superior graphics for the sake of "Big Blue" compatibility will have to turn the Video RAM Boards off when running this program.

I have also included some of the storm data for 1984. Since this program uses DATE\$ to determine which year the data is for, before entering BASIC and running the program, use DATE to change the year to 1984. After you are through entering the 1984 data, go back to the operating system and change the year back to 1985. This will store the 1984 storm tracks with .B4 as the filename extension.

If anyone has any questions, suggestions or comments, write or give me a call.



# ◆ TRACKER

Craig



## Listing 1: TRACKER.BAS

```

10 REM Program TRACKER
20 REM By Robert Craig, 1225 W. Prospect Rd #f204, Fort Collins, CO 80526
25 REM 1-303-224-4079
30 REM *****
32 REM * This program takes user inputted storm data (taken from the *
33 REM * NWS, Local TV weather, Weather Channel, etc.) and stores it *
34 REM * disk files. It also plots the storm data on a map of the *
35 REM * time, and date taken from the most recent storm fix. Latitude *
36 REM * and longitude are inputted in degrees and hundreths. If data *
37 REM * if given in degrees and minutes divide the minutes portion by *
38 REM * 60 and add the result to the whole degrees. *
39 REM * Subroutines are defined as follows: *
40 REM * gosub 60000-This routine loads the storm position data in *
41 REM * from disk, stores it in an array, then calls *
42 REM * display routines. *
43 REM * gosub 100000-This routine reads in data coordinates from data *

```



```

44 REM * statements and draws map using gosub 11000. *
45 REM * gosub 11100. *
46 REM * gosub 12100-This routine plots a static storm position *
47 REM * gosub 12200-This routine calculates the storm track between *
48 REM * fix positions and uses gosub 12400 and 12500 *
49 REM * to determine which slope to use for best animat- *
50 REM * ion. *
51 REM * gosub 13000-This routine actually draws the storm symbol on *
52 REM * the screen using xor so the map is not modified *
53 REM * and plots a point to represent track. *
54 REM * gosub 13100-This routine erases symbol drawn by gosub 13000 *
55 REM * with out modifying map. The plotted track is not *
56 REM * erased. *
65 REM *****
80 DIM PW%(202),PD%(202),PS%(202),PH%(202),N$(26),SDATA$(5,40),T$(200)
98 REM
99 REM
100 REM *****
101 REM * Draw introduction screen *
102 REM *****
104 COLOR 2,0
105 CLS:SYMBOL(145,2),"Hurricane",5,4,6,0:SYMBOL(240,60),"Tracker",3,2,4,0
110 LOCATE 12,33,0:COLOR 2:PRINT"By Robert Craig":LOCATE 13,27:PRINT"1225 W. Pro
spect Rd, #f204"
115 LOCATE 14,29:PRINT"Fort Collins, 80526"
120 LOCATE 15,33:PRINT"1-303-224-4079"
125 LOCATE 18,3:COLOR 3:PRINT"Hurricane":CIRCLE(36,156),8,,,,6:PAINT(36,156),6,6
130 LINE(35,152)-(39,152),6:LINE(37,160)-(33,160),6
132 LINE(39,152)-(42,153),6:LINE(33,160)-(30,159),6
134 LINE(42,153)-(44,155),6:LINE(30,159)-(28,157),6
136 LINE(44,155)-(44,158),6:LINE(38,157)-(28,154),6
138 LINE(44,158)-(43,161),6:LINE(28,154)-(29,151),6
140 LINE(43,161)-(41,163),6:LINE(29,151)-(31,149),6
142 GET(27,148)-(45,164),PH%
144 LOCATE 22,4:COLOR 1:PRINT">=73mph":LOCATE 18,28:COLOR 3:PRINT"Storm"
146 CIRCLE(226,156),8,,,,6
148 LINE(225,152)-(229,152),6:LINE(227,160)-(223,160),6
150 LINE(229,152)-(232,153),6:LINE(223,160)-(220,159),6
152 LINE(232,153)-(234,155),6:LINE(220,159)-(218,157),6
154 LINE(234,155)-(234,158),6:LINE(218,157)-(218,154),6
156 LINE(234,158)-(233,161),6:LINE(218,154)-(219,151),6
158 LINE(233,161)-(231,163),6:LINE(219,151)-(221,149),6
160 GET(217,148)-(235,166),PS%:LOCATE 22,28:COLOR 1:PRINT">=39mph"
162 LOCATE 18,47:COLOR 3:PRINT"Depression":CIRCLE(400,156),8,,,,6
163 GET(391,148)-(409,164),PD%

```

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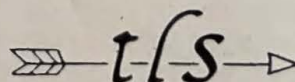
```

164 LOCATE 22,49:COLOR 1:PRINT"<39mph"
166 LOCATE 18,70:COLOR 3:PRINT"Wave"
168 LINE(573,155)-(571,155),6:LINE(573,155)-(573,157),6
170 LINE(573,157)-(571,157),6:LINE(571,157)-(571,155),6
172 GET(565,148)-(583,164),PW%
175 LOCATE 24,30:COLOR 4:PRINT"Press any key to continue"
190 IF INKEY$="" THEN 190
198 REM
199 REM
200 REM *****
201 REM * Main menu *
202 REM *****
209 WINDOW (0,0)-(639,199)
210 CLS:COLOR 7,0
220 LOCATE 1,32,0:PRINT "HURRICANE TRACKER"
230 LOCATE 5,1:PRINT "Enter number of option."
240 LOCATE 10,5:COLOR 7:PRINT "Options:"
250 LOCATE 11,8:COLOR 2:PRINT "1. Input Postion Data"
260 LOCATE 12,8:PRINT "2. Display Storm Track"
265 LOCATE 13,8:PRINT"3. Display Tracks of All Storms For Selected Year"
266 LOCATE 14,8:PRINT "4. Rename existing storm file"
267 LOCATE 15,8:COLOR 4:PRINT "5. Return to operating system"
270 CHOICE=VAL(INKEY$):IF CHOICE=0 THEN 270
280 IF CHOICE=1 THEN LOCATE 11,8:COLOR 0,2:PRINT "1.":FOR A=1 TO 500:NEXT A:GOSU
B 600
290 IF CHOICE=2 THEN LOCATE 12,8:COLOR 0,2:PRINT "2.":FOR A=1 TO 500:NEXT A:GOSU
B 3000
295 IF CHOICE=3 THEN LOCATE 13,8:COLOR 0,2:PRINT "3.":FOR A=1 TO 500:NEXT A:GOSU
B 3400
296 IF CHOICE=4 THEN LOCATE 14,8:COLOR 0,2:PRINT"4.":FOR A=1 TO 500:NEXT:GOSUB 4
000
298 IF CHOICE=5 THEN SYSTEM
300 IF CHOICE>5 THEN 270
590 REM
591 REM
592 REM
600 REM *****
601 REM *Input storm position data and store it to a file*
602 REM *****
610 COLOR 7,0:CLS
620 LOCATE 1,25:PRINT "HURRICANE TRACKER POSITION INPUT"
630 LINE (516,22)-(639,128),5,B
640 LOCATE 4,66:COLOR 2:PRINT "Name:"
650 LOCATE 6,66:PRINT "Intensity:"
660 LOCATE 8,66:PRINT "Latitude:"
670 LOCATE 10,66:PRINT "Longitude:"

```

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```

680 LOCATE 12,66:PRINT "Date Of Fix:"
690 LOCATE 14,66:PRINT "Time Of Fix:"
691 CHOICE=2
695 ON ERROR GOTO 7000
697 LOCATE 5,1,1:INPUT "Enter name of the storm (capitalize): ",SNAME$
699 OPEN "i",#2,LEFT$(SNAME$,8)+"."+RIGHT$(DATE$,2)
700 CLOSE 2
707 LOCATE 7,1:PRINT SPACE$(55):PRINT SPACE$(55)
708 LOCATE 6,1:PRINT SPACE$(55)
710 LOCATE 5,69:COLOR 7:PRINT SNAME$
720 LOCATE 5,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:PRINT "Enter intensity of storm:"
725 LOCATE 6,1:INPUT "w-Wave, d-Depression, s-Storm, h-Hurricane. ",INTENSITY$
727 IF INTENSITY$= "w" OR INTENSITY$= "d" OR INTENSITY$= "s" OR INTENSITY$= "h" THEN 730
728 LOCATE 6,1:PRINT SPACE$(55):GOTO 725
730 LOCATE 7,69:COLOR 7:PRINT INTENSITY$
740 LOCATE 5,1:PRINT SPACE$(55):LOCATE 6,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:INPUT "Enter latitude of storm. ",LATITUDE$
745 IF VAL(LATITUDE$)>45 THEN LOCATE 7,5:COLOR 4:PRINT"Latitude is too large, reenter.":GOTO 740
750 LOCATE 9,69:COLOR 7:PRINT LATITUDE$
755 LOCATE 7,1:PRINT SPACE$(55)
760 LOCATE 5,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:INPUT "Enter longitude of storm: ",LONGITUDE$
765 IF VAL(LONGITUDE$)<30 THEN LOCATE 7,5:COLOR 4:PRINT"Longitude is too small, reenter.":GOTO 760
768 LOCATE 7,1:PRINT SPACE$(55)
770 LOCATE 11,69:COLOR 7:PRINT LONGITUDE$
780 LOCATE 5,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:INPUT "Enter date of fix in GMT (dd mm yy): ",FIXDATE$
790 LOCATE 13,69:COLOR 7:PRINT FIXDATE$
800 LOCATE 5,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:INPUT "Enter time of fix in GMT (tttt): ",FIXTIME$
810 LOCATE 15,69:COLOR 7:PRINT FIXTIME$
820 LOCATE 5,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:INPUT "Does input data look correct? ",A$
830 IF A$="n" THEN 610
832 ' Save data to disk
835 FILENAME$=LEFT$(SNAME$,8)+"."+RIGHT$(DATE$,2)
840 ON CHOICE GOTO 920,900
890 REM
900 OPEN "a",#2,FILENAME$
902 PRINT#2,FIXDATE$:PRINT#2,FIXTIME$:PRINT#2,INTENSITY$
903 PRINT#2,LATITUDE$:PRINT#2,LONGITUDE$
904 CLOSE 2:GOTO 995
918 REM
920 OPEN "o",#2,FILENAME$
922 PRINT#2,SNAME$:PRINT#2,FIXDATE$:PRINT#2,FIXTIME$
923 PRINT#2,INTENSITY$:PRINT#2,LATITUDE$:PRINT#2,LONGITUDE$
924 CLOSE 2:GOTO 990
950 REM
990 OPEN "a",#2,"storms."+RIGHT$(DATE$,2)
992 PRINT#2,FILENAME$:CLOSE 2
995 LOCATE 5,1:PRINT SPACE$(55):LOCATE 5,1:COLOR 2:INPUT "Any more positions to enter? ",A$
997 IF A$="y" THEN 610
1000 ' PLOT CURRENT POSITION
1002 RESTORE 15005

```



```

1010 GOSUB 10000
1030 SYMBOL(100,1),SNAME$,2,1,7,0
1035 LOCATE 1,45:PRINT "Date: ";FIXDATE$:LOCATE 1,64:PRINT "Time: ";FIXTIME$
1040 GOSUB 12100
1045 LOCATE 1,1,0:SYMBOL(224,12),"Hit any key for main menu.",1,1,4,0
1050 IF INKEY$="" THEN 1050
1070 GOTO 2000
2000 REM
2001 REM
2002 REM
3000 REM *****
3001 REM *   Display storm track for selected storm   *
3002 REM *****
3010 COLOR 7,0:CLS:LOCATE 1,30:PRINT "DISPLAY STORM TRACK"
3012 LOCATE 3,5:COLOR 6:PRINT "Here is files stored on this disk"
3015 LOCATE 5,1:FILES
3019 ON ERROR GOTO 7100
3020 ER=0:COLOR 2,0:LOCATE 24,5,1:INPUT "Enter name of storm and year (name.yy):
",SNAME$
3022 FILENAME$=MID$(SNAME$,1,LEN(SNAME$)-3):D$=RIGHT$(SNAME$,2)
3025 FILENAME$=LEFT$(FILENAME$,8)+". "+D$
3035 OPEN "i",#2,FILENAME$
3038 CLOSE 2:IF ER=1 THEN 3020
3040 GOSUB 10000: 'draw screen
3045 GOSUB 6000: ' Input storm data and plot
3050 SYMBOL(140,12),"Hit any key for menu.",1,1,4,0
3060 IF INKEY$="" THEN 3060
3070 GOTO 2000
3390 REM
3391 REM
3392 REM
3400 REM *****
3401 REM *   Display all tracks for selected year   *
3402 REM *****
3410 COLOR 7,0:CLS:LOCATE 1,25:PRINT "DISPLAY ALL TRACKS FOR SELECTED YEAR"
3420 LOCATE 5,1,1:COLOR 2:INPUT "Enter year tracks will be displayed for: ",YEAR
$
3425 YEAR$=RIGHT$(YEAR$,2)
3430 ' Load all storm tracks for year selected
3432 COUNT=1
3433 ON ERROR GOTO 7200
3435 OPEN "i",#2,"storms."+YEAR$
3438   WHILE NOT EOF(2)
3440     INPUT#2,N$(COUNT)
3442     COUNT=COUNT+1
3445   WEND
3447 CLOSE 2
3448 GOSUB 10000
3449 FOR E=1 TO COUNT-1
3450   FILENAME$=N$(E)
3453   GOSUB 6000
3455 NEXT E
3460 SYMBOL(145,12),"Hit any key for menu.",1,1,4,0
3465 IF INKEY$="" THEN 3465
3470 GOTO 2000
3997 REM
3998 REM
3999 REM *****
4000 REM *****
4001 REM *   Rename existing storm file   *

```



```

4002 REM *****
4010 COLOR 7,0:CLS:LOCATE 1,27:PRINT"RENAME EXISTING STORM FILE"
4011 LOCATE 3,5:COLOR 6:PRINT "Here are the files stored on this disk."
4012 LOCATE 5,1:FILES
4015 LOCATE 23,5:COLOR 2:INPUT"Enter new storm name (capitalize): ",SNAME$
4019 ON ERROR GOTO 7100
4020 ER=0:COLOR 2:LOCATE 24,5:INPUT"Enter old storm name: ",OLDNAME$
4030 OPEN "i",#2,LEFT$(OLDNAME$,8)+". "+RIGHT$(DATE$,2)
4032 IF ER=1 THEN GOTO 4020
4035 INPUT#2,ONAME$
4040 COUNT=1
4045 WHILE NOT EOF(2)
4050     INPUT#2,T$(COUNT):COUNT=COUNT+1
4055 WEND:CLOSE 2
4060 OPEN "o",#2,LEFT$(SNAME$,8)+". "+RIGHT$(DATE$,2)
4065 PRINT#2,SNAME$
4070 FOR I=1 TO COUNT-1
4075     PRINT#2,T$(I)
4080 NEXT I:CLOSE 2
4082 COUNT=1
4085 OPEN "i",#2,"storms."+RIGHT$(DATE$,2)
4090 WHILE NOT EOF(2)
4095     INPUT#2,N$(COUNT)
4100     IF N$(COUNT)=LEFT$(OLDNAME$,8)+". "+RIGHT$(DATE$,2) THEN
4105         N$(COUNT)=LEFT$(SNAME$,8)+". "+RIGHT$(DATE$,2)
4110         COUNT=COUNT+1
4115 WEND:CLOSE 2
4125 OPEN "o",#2,"storms."+RIGHT$(DATE$,2)
4130 FOR I=1 TO COUNT-1
4135     PRINT#2,N$(I)
4140 NEXT I:CLOSE 2
4142 KILL LEFT$(OLDNAME$,8)+". "+RIGHT$(DATE$,2)
4145 GOTO 200
5997 REM
5998 REM
5999 REM
6000 REM -----SUBROUTINE DISPLAY TRACK-----
6010 OPEN "i",#2,FILENAME$
6015 COUNT=1
6020 INPUT#2,SNAME$
6025 WHILE NOT EOF(2):'load data
6030     INPUT#2,SDATA$(1,COUNT):INPUT#2,SDATA$(2,COUNT)
6035     INPUT#2,SDATA$(3,COUNT):INPUT#2,SDATA$(4,COUNT)
6040     INPUT#2,SDATA$(5,COUNT)
6045     COUNT=COUNT+1
6050 WEND:CLOSE 2
6070 ' MOVE STORM SYMBOL ALONG TRACK
6073 LOCATE 1,1:PRINT SPACE$(40)
6075 SYMBOL(100,1),SNAME$,2,1,7,0
6080 LOCATE 1,44:COLOR 2:PRINT "Date: ":LOCATE 1,64:PRINT "Time: "
6085 FIRSTPASS=1
6090 FOR A=1 TO COUNT-2
6095     LOCATE 1,52:PRINT SDATA$(1,A)
6100     LOCATE 1,71:PRINT SDATA$(2,A)
6105     INTENSITY$=SDATA$(3,A)
6110     LATITUDE$=SDATA$(4,A):LONGITUDE$=SDATA$(5,A):GOSUB 12200
6115 NEXT A
6120 RETURN
7000 REM -----Error Subroutine Newfile-----

```



```

7005 LOCATE 7,5:COLOR 3:INPUT"Is this the first entry on a new storm, Y/N? ",A$
7010 IF A$="Y" THEN CHOICE=1:RESUME NEXT
7012 LOCATE 8,1:PRINT SPACE$(55)
7015 LOCATE 7,5:PRINT SPACE$(55):LOCATE 7,5:COLOR 4:PRINT"Storm name does not ma
tch any stored file."
7018 LOCATE 5,1:PRINT SPACE$(55)
7020 LOCATE 8,5:PRINT"Reenter name. ":COLOR 2
7025 RESUME 697
7100 REM -----Error Subroutine, File not found-----
7110 LOCATE 24,5:PRINT SPACE$(55):LOCATE 24,5:COLOR 4:PRINT "File not found, Ree
nter name."
7115 FOR A=1 TO 800:NEXT A:ER=1
7120 LOCATE 24,5:PRINT SPACE$(74)
7130 RESUME NEXT
7200 REM -----Error Subroutine, No files for selected year-----
7210 LOCATE 7,1:COLOR 4:PRINT "No files for selected year, Reenter year."
7212 LOCATE 5,1:PRINT SPACE$(55)
7215 RESUME 3420
10000 REM -----Subroutine Draw Caribbean-----
10010 CLS:WINDOW (27,0)-(665,199)
10020 VIEW (0,0)-(639,199),0:LOCATE 1,1,0
10025 RESTORE
10030 GOSUB 11000:'draw US,caribbean,atlantic boundries
10040 GOSUB 11000:'draw pacific,mexico boundries
10043 GOSUB 11000:'draw cuba
10046 GOSUB 11000:'draw caymen island
10049 GOSUB 11000:'draw jamiaca
10052 GOSUB 11000:'draw haiti
10055 GOSUB 11000:'draw puerto rico
10058 GOSUB 11000:'plot west indies and bermuda
10061 GOSUB 11000:'draw florida keys
10064 GOSUB 11000:'draw bahamas
10067 GOSUB 11000:'plot bahamas
10070 PAINT (560,30),1,2:PAINT (30,156),1,2
10073 GOSUB 11000:'us borders
10090 RETURN
11000 REM -----Subroutine Read and Draw-----
11005 X=1:Y=1:FLAG=0
11010 WHILE X>0 AND Y>0
11020     READ X,Y
11025     IF X=700 THEN 11005
11030     IF X=0 AND Y=0 THEN 11070
11040     IF FLAG=0 AND X>0 AND Y>0 THEN X1=X:Y1=Y:READ X,Y:LINE (X1,Y1)-(X,Y),2
        ELSE LINE -(X,Y),2
11050     FLAG=1
11060 WEND
11070 RETURN
11100 REM -----Subroutine Read and Plot-----
11110 X=1:Y=1
11120 WHILE X>0 AND Y>0
11130     READ X,Y
11140     PSET(X,Y),2
11150 WEND
11160 RETURN
12100 REM -----Subroutine Plot Storm Position-----
12110 X=-12.172*VAL(LONGITUDE$)+1257.29-36
12120 Y=-6.33*VAL(LATITUDE$)+261-8
12125 IF X>638 OR X<1 OR Y>185 OR Y<20 THEN RETURN
12130 IF INTENSITY$="w" THEN PUT (X,Y),PW%,XOR

```



```

12140 IF INTENSITY$="d" THEN PUT (X,Y),PD%,XOR
12150 IF INTENSITY$="s" THEN PUT (X,Y),PS%,XOR
12160 IF INTENSITY$="h" THEN PUT (X,Y),PH%,XOR
12190 RETURN
12200 REM -----Subroutine Calculate Path Between Fixes-----
12215 X=-12.172*VAL(SDATA$(5,A))+1257.29-36
12220 XNEXT=-12.172*VAL(SDATA$(5,A+1))+1257.29-36
12230 Y=-6.33*VAL(SDATA$(4,A))+261-8
12240 YNEXT=-6.33*VAL(SDATA$(4,A+1))+261-8
12242 IF Y<13 OR Y>189 OR X<1 OR X>600 THEN RETURN
12245 IF ABS(X-XNEXT)<2 AND ABS(Y-YNEXT)<2 THEN RETURN
12248 IF FIRSTPASS=1 THEN SYMBOL (X+40,Y+5),LEFT$(SNAME$,1),2,1,4,0:FIRSTPASS=0
12250 IF ABS(X-XNEXT)>=ABS(Y-YNEXT)*2 THEN GOSUB 12400 ELSE 12500
12300 RETURN
12400 REM -----Subroutine Use Y/X For Slope-----
12410 ISTEP=ABS(XNEXT-X)/(XNEXT-X)
12430 TIMESTEP=ABS((X+Y)-(XNEXT+YNEXT))*100
12435 XX=X:F1=0:YY=Y
12438 SLOPE=(YNEXT-Y)/(XNEXT-X)
12440 WHILE ABS(X-XNEXT)>1 AND Y>16
12442 IF F1=1 THEN X=X+ISTEP
12450 IF F1=1 THEN Y=(X-XX)*SLOPE+YY
12453 IF F1=1 THEN GOSUB 13100
12455 GOSUB 13000
12460 XLAST=X:YLAST=Y
12465 F1=1
12470 FOR B=1 TO 50:NEXT B
12475 WEND
12477 GOSUB 13100
12480 RETURN
12500 REM -----Subroutine Use X/Y For Slope-----
12505 ISTEP=ABS(YNEXT-Y)/(YNEXT-Y)
12515 TIMESTEP=ABS((X+Y)-(XNEXT+YNEXT))
12517 YY=Y:F1=0:XX=X
12518 SLOPE=(XNEXT-X)/(YNEXT-Y)
12520 WHILE ABS(Y-YNEXT)>1 AND Y>16
12525 IF F1=1 THEN Y=Y+ISTEP
12535 IF F1=1 THEN X=(Y-YY)*SLOPE+XX
12540 IF F1=1 THEN GOSUB 13100
12545 GOSUB 13000
12550 XLAST=X:YLAST=Y
12555 F1=1
12557 FOR B=1 TO 70:NEXT B
12560 WEND
12565 GOSUB 13100
12570 RETURN
13000 REM -----Subroutine Plot Storm And Track-----
13001 IF INTENSITY$="w" THEN C=7
13002 IF INTENSITY$="d" THEN C=3
13003 IF INTENSITY$="s" THEN C=6
13004 IF INTENSITY$="h" THEN C=4
13006 PSET(X+36,Y+8),C
13010 IF INTENSITY$="w" THEN PUT (X,Y),PW%,XOR
13015 IF INTENSITY$="d" THEN PUT (X,Y),PD%,XOR
13020 IF INTENSITY$="s" THEN PUT (X,Y),PS%,XOR
13025 IF INTENSITY$="h" THEN PUT (X,Y),PH%,XOR
13040 RETURN
13100 REM -----Subroutine Erase Storm Symbol-----
13110 IF INTENSITY$="w" THEN PUT (XLAST,YLAST),PW%,XOR

```



```

13115 IF INTENSITY$="d" THEN PUT (XLAST,YLAST),PD%,XOR
13120 IF INTENSITY$="s" THEN PUT (XLAST,YLAST),PS%,XOR
13125 IF INTENSITY$="h" THEN PUT (XLAST,YLAST),PH%,XOR
13140 RETURN
15000 REM *****CARIBBEAN,ATLANTIC BOUNDRIES
15005 DATA 27,23,333,23,338,30,334,29,335,33,328,34,325,39,301,46,286,52
15010 DATA 273,57,268,62,268,66,270,74,280,83,285,89,279,103,272,102
15020 DATA 270,99,263,96,255,90,255,84,250,85,253,81,239,70,228,71,222,73,213,69
15030 DATA 196,67,191,69,191,66,185,68,165,68,172,71,171,73,174,76,172,77,166,74
15040 DATA 156,76,141,72,135,74,124,71,119,71,111,73,107,72,91,79,86,77,81,81
15050 DATA 74,86,75,93,76,98,68,102,68,109,71,118,71,122,77,126,77,129,81,132
15060 DATA 91,141,99,141,114,146,126,145,135,143,150,144,154,140,158,135
15070 DATA 163,127,177,127,184,125,192,125,193,127,200,126,200,129,197,139
15080 DATA 190,146,186,144,186,155,178,161,181,162,211,161,217,160,234,162
15090 DATA 244,165,247,169,241,180,243,191,255,198,286,199,299,197,305,199
15100 DATA 337,199,345,189,367,188,388,181,394,183,384,187,383,199,394,199
15110 DATA 391,191,393,188,406,188,407,182,411,187,419,187,433,190,433,192
15120 DATA 458,191,467,193,474,193,479,190,502,189,494,192,493,194,500,194
15130 DATA 509,195,509,192,516,189,518,189,520,193,509,193,509,196,522,199
15140 DATA 665,199,665,23,333,23,0,0
15150 REM *****MEXICO,PACIFIC BOUNDRIES
15160 DATA 27,151,87,161,97,159,117,159,128,164,129,166,139,167,146,172
15170 DATA 164,173,174,175,184,176,189,174,192,177,191,179,213,189,217,196
15180 DATA 222,199,27,199,27,23,0,0
15190 REM *****CUBA
15200 DATA 228,123,233,122,234,119,245,116,260,115,284,116,285,118,300,121
15210 DATA 312,124,323,127,338,128,340,132,353,133,353,135,336,136,314,136
15220 DATA 320,133,318,131,307,130,301,127,289,126,278,122,261,122,261,120
15230 DATA 263,118,254,119,243,121,230,124,0,0
15240 REM *****CAYMEN ISLANDS
15250 DATA 266,139,271,139,272,140,266,140,0,0
15260 REM *****JAMICA
15270 DATA 306,147,312,145,331,148,318,150,312,148,306,146,0,0
15280 REM *****HAITI
15290 DATA 354,146,360,143,371,145,381,143,368,136,378,136,384,137,400,137
15300 DATA 412,139,424,143,425,145,412,146,397,146,389,150,383,147,372,146
15310 DATA 361,147,355,146,0,0
15320 REM *****PUERTO RICO
15330 DATA 441,146,443,144,448,143,451,144,461,144,461,147,454,148,442,148
15340 DATA 441,146,0,0
15350 REM *****WEST INDIES AND BERMUDA
15360 DATA 475,143,492,143,505,150,507,153,509,158,510,160,512,161,514,162
15370 DATA 515,167,517,171,518,172,516,177,533,176,522,187
15380 DATA 472,56,472,55,474,55,0,0
15390 REM *****FLORIDA KEYS
15400 DATA 280,102,269,105,260,106,0,0
15410 REM *****BAHAMAS
15420 DATA 309,102,313,106,315,110,311,109,304,105,309,102,700,700,300,92,305,91
15430 DATA 310,93,700,700,313,91,319,94,318,98,700,700,327,100,331,104,700,700
15440 DATA 339,105,340,107,700,700,344,113,347,116,0,0,0,0
15450 REM *****US STATE BORDERS
15460 DATA 272,55,247,36,272,36,277,39,284,38,298,42,298,45,700,700,267,65
15470 DATA 226,65,224,64,224,52,220,48,213,36,700,700,223,64,194,64,194,67
15480 DATA 700,700,183,67,185,37,700,700,167,67,170,64,145,63,152,53,149,51
15490 DATA 149,45,159,36,700,700,149,50,115,50,120,58,120,70,700,700,71,97
15500 DATA 27,72,700,700,116,49,116,44,107,44,106,23,700,700,106,44,90,40
15510 DATA 76,40,62,38,50,38,38,36,38,23,700,700,165,23,163,30,168,30,161,36
15520 DATA 244,36,700,700,234,36,278,23,0,0
15540 DATA 527,71,101,166,0,0

```



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The following listings are files of storm data recorded in 1984 and used by the Hurricane Tracker program. They should be entered and named as shown into separate files using EDLIN, COPY CON:, or WordStar's non-document mode.

### Listing 2: STORMS.84

ARTHUR.84  
DIANA.84  
EDWARD.84  
HORTENCE.84  
ISIDORE.84  
JOSEPHIN.84  
KLAUS.84

80.6  
10 09 84  
0600  
h  
30.5  
80.2  
10 09 84  
1800  
h

0600  
d  
21  
95.5  
14 09 84  
1800  
s  
20.5  
96

### Listing 3: ARTHUR.84

ARTHUR  
31 08 84  
0600  
s  
15  
58  
02 09 84  
1200  
s  
18  
62  
03 09 84  
1200  
s  
20  
63  
04 09 84  
1200  
s  
22  
64  
05 09 84  
1200  
s  
25  
67  
06 09 84  
0600  
d  
25.5  
68  
06 09 84  
1800  
w  
26  
67.3

31.1  
79.3  
11 09 84  
0600  
h  
32.1  
78.6  
11 09 84  
1800  
h  
33.8  
77.8  
12 09 84  
0600  
h  
34  
77.3  
12 09 84  
1800  
h  
33.8  
77.3  
13 09 84  
0600  
h  
34  
78.2  
13 09 84  
1800  
s  
34.5  
78.5  
14 09 84  
0600  
s  
35.2  
77.7  
14 09 84  
1800  
s  
36.5  
73.6  
15 09 84  
0600  
s  
38  
70

15 09 84  
0600  
s  
20  
95.7

### Listing 6: HORTENCE.84

HORTENCE  
25 09 84  
1800  
s  
30  
60.4  
26 09 84  
1800  
s  
32.2  
60.9  
27 09 84  
0600  
s  
32.8  
60.6  
27 09 84  
1800  
s  
33  
59.8  
28 09 84  
0600  
s  
32.5  
60  
28 09 84  
1800  
s  
30.5  
62  
29 09 84  
0600  
s  
30.4  
63.5  
29 09 84  
1800  
s  
31  
64.5  
30 09 84  
0000  
s  
32  
65  
30 09 84  
0600  
s

### Listing 4: DIANA.84

DIANA  
08 09 84  
1800  
s  
28.5  
78  
09 09 84  
0600  
s  
28.7  
80  
09 09 84  
1800  
s  
29.7

36.5  
73.6  
15 09 84  
0600  
s  
36.5  
73.6  
15 09 84  
0600  
s  
38  
70  
14 09 84  
EDWARD  
13 09 84  
2400  
d  
20  
96  
14 09 84

### Listing 5: EDWARD.84

30.5  
62  
29 09 84  
0600  
s  
31  
64.5  
30 09 84  
0000  
s  
32  
65  
30 09 84  
0600  
s



63.7  
30 09 84  
1800  
s  
38  
59.5  
01 10 84  
0600  
d  
41  
44.5  
**Listing 7: ISIDORE.84**

ISIDORE  
25 09 84  
1800  
d  
25  
76  
26 09 84  
1800  
s  
25  
78  
27 09 84  
0600  
s  
26.3  
80  
27 09 84  
1800  
s  
27.9  
80.9  
28 09 84  
0000  
s  
28.2  
82.5  
28 09 84  
0600  
s  
29  
82.5  
28 09 84  
1200  
s  
30  
82.2  
28 09 84  
1800  
s  
30.2  
81.9  
29 09 84  
0000  
s  
31.2  
80.8  
29 09 84  
0600  
s  
31.7  
80  
29 09 84  
1200  
s  
31.9  
79  
30 09 84

0600  
s  
34.5  
73  
01 10 84  
1800  
d  
35.4  
68  
01 10 84  
1800  
d  
35.4  
67  
**Listing 8: JOSEPHIN.84**

JOSEPHINE  
08 10 84  
0600  
s  
25.5  
71.5  
09 10 84  
0600  
s  
25  
72  
09 10 84  
1800  
h  
27  
72.3  
10 10 84  
0600  
h  
27.8  
72.8  
10 10 84  
1800  
h  
28  
72.8  
11 10 84  
0000  
h  
28.5  
72.3  
11 10 84  
0600  
h  
29.4  
72.5  
11 10 84  
1800  
h  
31  
72  
12 10 84  
0600  
h  
32.6  
71.4  
12 10 84  
1800  
h  
33.9  
71.3  
13 10 84  
0600  
h  
35.2

71.1  
13 10 84  
1800  
h  
35.7  
71.3  
14 10 84  
0000  
h  
36.7  
72.3  
14 10 84  
0600  
h  
37.3  
71.9  
14 10 84  
1800  
h  
36.2  
70.7  
15 10 84  
0000  
h  
36  
69.2  
15 10 84  
0600  
h  
36.5  
66.5  
15 10 84  
1800

h  
38.3  
64  
**Listing 9: KLAUS.84**  
  
KLAUS  
06 11 84  
1800  
s  
17.3  
66.3  
07 11 84  
0600  
s  
18.6  
65.3  
08 11 84  
1800  
h  
19.7  
61.6  
09 10 84  
0600  
h  
20  
59  
10 11 84  
1800  
h  
29  
53.2

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# REVIEWS



## Software review

### *Smart Key II Plus — A Smart Move For Any User*

*Smart Key II Plus* is a versatile utility package that combines user flexibility on the keyboard and mixing of printing features. *Smart Key II* provides the user with the capability to redefine the keyboard to fit whatever requirements are needed. It allows a single key to replace a series of commands, enter data or instructions, write form letters and eliminate errors. *Smart Print II* provides the user with the capability to mix printer functions such as wide, emphasized, condensed, italics, underline, superscript, subscript, and combinations of any of these.

Both *Smart Key II* and *Smart Print II* are designed to make the user's job easier. By applying them to many applications, they eliminate repetitive keystrokes and make complex print commands easier to use. Should you decide to purchase a copy of this powerful package, you will quickly find it is easy to learn, simple to operate, and in no time at all you will be working like a pro and wondering how you ever got by without it.

The package includes a floppy disk consisting of several files and a complete documentation manual. The disk contains the command files consisting of the main program and the associated utility programs and definition files for the IBM Selectric DVORAK keyboard layout, *WordStar*, *Lotus 1-2-3*, *dBase II*, Epson and Gemini printers.

*Smart Key II Plus* is well documented. The manual contains explicit instructions on how to use each command, how the commands can interact with other programs, and explanations of the contents of each sample file. The portion of the manual relating to *Smart Print II* was produced using *Smart Print II* and added to the manual. The *Smart Print II* documentation is also contained on the disk file as SMARTPRN.DOC, to be used as an example to show how the program works.

The only problem I found was that the documentation related to the IBM keyboard and not the Sanyo. It continually refers to the PRTSC key on the IBM PC for printing and Sanyo does not have this key. To print with Sanyo you must use CONTROL-P to print, then the TYPE command for hard copy. When the information has been printed, use CONTROL-N to turn the printer off. This is only required for a hard copy printout of the sample files maintained on the package disk.

*Smart Key II* runs in background mode and requires 7K, plus twice the size of the definition table being utilized. The standard default for a definition table is 300 characters. The maximum length is 30,000 characters. A "Smart Window" appears when the user wants to create or review definitions, and disappears after its use. Definitions can be created or changed at any time within any program without destroying the program in memory. *Smart Key II* allows the user to define a single key to have another meaning. For example:

- 1) A single key could simply redefine itself, such as semicolon (;) to colon (:). In this case the keys are reversed.
- 2) A key could be defined to execute a string of commands, such as defining PF1 to execute "COPY A \*.COM B: ENTER DIR B: \*.COM ENTER." In this example, the PF1 key will copy all the .COM files from drive A to drive B and then perform a directory listing on the .COM files in drive B.
- 3) A key can be defined to execute a string of characters, such as defining PF2 as "Smart Key II is user friendly." In this example, the PF2 Key will produce the line "Smart Key II is user friendly" each time the key is depressed.
- 4) A key can be defined to represent a boilerplate, such as defining PF3 as "Sincerely Yours, ENTER ENTER ENTER Your Name ENTER Your Title ENTER Your Initials/Your Secretary's Initials." In this case, each time PF3 is depressed you would receive the closing of a letter in its proper form.

Any key can be used as a redefinition key. This provides numerous options when creating definitions. The original definition of a redefined key can be had by simply pressing the key two times. This means the true definition of the keyboard is never lost. For example, if 'z' were defined as "Smart Key II," entering 'z' once would produce "Smart Key II" and entering 'z' twice would produce 'z.'

The "Smart" command allows the user to define a key, expand its definition, accept variable information within a definition, accept a fixed number of keystrokes within a variable definition, record and memorize keystrokes and save the definition, change the rate of speed at which the definitions are produced, delay the rate of speed a definition appears, and restore a key to its previous definition should you make a mistake.

After creating a new definition file, the user has the option of destroying it, saving it or merging it with another

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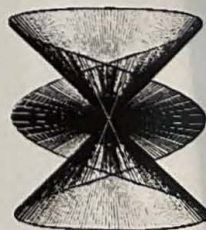
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definition file. Other options of the utility programs are to list the contents of a definition file on disk (this does not destroy the definition file in memory), load a new set of definitions from disk to memory (this destroys any previous definitions currently residing in memory), clear the current definition in memory, move the definition of one key to another without reentering the definition, set expansion delay time and unload *Smart Key II* from memory.

*Smart Print II* works with *Smart Key II*. They require the same version in order to operate successfully. Basically, *Smart Print II* translates what the keyboard sends to the printer.

*Smart Print II*, like *Smart Key II*, runs in background mode and requires 3K of memory. It provides a maximum of 30,000 printer commands. It can print simple or complex commands, fractions, utilize graphics, and can change paper commands from eight to 10 inches. The user defines the keys for print definitions and then executes them at print time. The definitions can then be saved if desired. Specific operations relating to *Smart Print II* are: Load New Definitions, List the Current Definitions and Clear the Current Definitions.

Working with *Smart Key II* and *Smart Print II*, I followed the instructions in the documentation manual and supporting papers. A special batch file is provided to modify MS-DOS 2 in order to make *Smart Key II Plus* work properly. The instructions for doing this modification are simple and easy to follow.

I had no problems making *Smart Key II* work with *WordStar*, *CalcStar* and BASIC. I found it especially useful for redefining keys to provide commands and strings of commands such as copying files, doing directory listings and clearing the screen. I also used it to reverse the colon and semicolon keys. In addition, the boilerplate provides many options to any user based on the specific requirements.

*Smart Print II* is also easy to use with other programs. It allows the user to add emphasis to reports and letters with relative ease. To use it with *WordStar*, all you must do is turn "word wrap" off, add the commands and print the report.

In summary, I find both *Smart Key II* and *Smart Print II* to be flexible and user-friendly packages which should make any user's job easier. They save time and increase efficiency. For example, for this review, "Smart Key II" and "Smart Print II" were defined one time each using PF2 and PF3 respectively. This means wherever the words *Smart Key II* or *Smart Print II* appear, it only required one keystroke. *Smart Key II* appears 20 times in this report and it took 20 keystrokes using the program, as opposed to the 240 keystrokes it would have taken had I not had the package. *Smart Print II* appears 13 times and it only took 13 keystrokes, where it would have taken 182 keystrokes without this package. It's easy to be efficient with *Smart Key II Plus*.

MS-DOS is such a powerful operating system that it is easy to understand why it has won such great acceptance in the world of microcomputers. So widely is it used that it has, for all practical purposes, become pretty much the *de facto* standard in the personal computer field.

A couple of the concepts, however, are not quite so easily understood. Chief among them, especially to newcomers, is the directory tree concept — the idea that one or more directories sit beneath another and that various files can be allocated in each of these directories.

Then, there are things you just cannot do. One of them, particularly galling, is the inability to rename a directory. I remember when I set up a directory for depreciation and capital assets and named it TEECEE after the initials of our accountant while I was developing it. When it was finished, however, it seemed more appropriate to call it ASSETS — but there was no way to rename a directory.

Finally, there is the inability to do very much with more than one file at a time. This, primarily, is why TEECEE still exists as a directory. I know I could have created a new directory named ASSETS, moved all the files in the TEECEE directory, one by one, to ASSETS, and then deleted all the files from TEECEE and, finally, removed TEECEE. It seemed easier to just get the people in bookkeeping used to using TEECEE as the directory where the assets programs were stored. I know our CPA feels justly honored!

Despite the brilliance of Bill Gates and his minions at Microsoft, there are a lot of things that *could* have been done with MS-DOS. Fortunately for all of us, the people at Executive Systems, Inc. seem to have done them.

They have created a fine utility package called *XTREE* which should be at the top of just about anyone's hit parade. *XTREE* solves all the problems I mentioned above and a lot more. In addition, it does it with elegance and style that is certain to make it a "must" for just about any MS-DOS user.

Let's go into some detail here:

The main *XTREE* screen gives you five important types of information, and gives them to you the way you want them. At the very top of the screen your current path is shown. This is significant since the "main" part of the screen is a graphic representation of the tree structure of your disk — showing the main directories, subdirectories and any directories under that. These are arranged in alphabetical order (a nice touch) and you can use the arrow or PG UP and PG DN keys to quickly move through all the directories you have.

As you move through the directories, a highlight bar shows where you are and the path indication changes at the top of the screen. You always know not only what directory you are in, but how to get there. I have used this part of the display as a teaching aid here in the office

(Software Research Technologies, 3757 Wilshire Blvd., Suite 211, Los Angeles, CA 90010, 213-384-4120, \$49.95)

— John E. Schlosser



to explain the directory tree structure to a number of our people.

Below the graphic representation of the tree structure is a listing of the files in the selected directory, once again in alphabetical order. You access the window by simply pressing the RETURN key and then use the PAGE or arrow keys to scroll through these files.

To jump ahead, a more complete listing of files is available simply by pressing RETURN again. The graphic representation of the directory tree goes away and even more files can be shown.

To the right of the short file window and the graphic tree is a set of windows which give statistics on the disk you have accessed and the files. This is very helpful information.

I suppose I should mention at this point that *XTREE* is fast! On the 775, it runs through a full, 360K disk in about three seconds. On the 550/555, which is notoriously slow I'm afraid, it takes about nine seconds for the same process (somewhat faster on a video board system) and about 40 seconds to run through a 10-megabyte hard disk, loaded to near-capacity.

Were this all that *XTREE* did, I would be moderately pleased that it allows me to find things so readily on my disk. However, we've really only touched the tip of this marvelous utility.

*XTREE's* true power comes from its ability to manipulate files and directories. You are able to delete, make and rename directories at the push of a single button. Additionally, you can show all files in a directory (or specify certain files) in an expanded window, log onto another disk or determine the available file space for making copies.

Let's look at that last one for a minute. Suppose you need to know whether you have space on a floppy (or a hard disk, for that matter) to copy a set of files. Instead of adding bytes with a calculator and then seeing how much vacant space there is on a disk, you simply use the "Available" command to check the space. Because *XTREE* also allows you to specify a group of files and find the total number of bytes in the group, it is a simple matter to determine whether you have space.

Oh yes, there is also a "Volume" command so you can change the name of the disk without reformatting it. Super, super, super — particularly considering the bugs that have surfaced in the *Volume* utility that Sanyo is distributing.

I have saved the best part of this directory command explanation for last — the tagging process. By specifying a certain kind of file, you can "tag" them for multiple-file operations. This, like all of *XTREE's* commands, is a simple one-button procedure.

But, there is more: file commands which allow you to set attributes, copy files, delete files and rename files. In combination with the tag function, you can perform each of these functions on whole groups of files with only a few keystrokes.

It is here that the real power of *XTREE* comes into play. Want to copy all your .COM files from the root directory to a new BIN directory? Simply use a single keystroke to "tag" all the .COM files, a second to copy them to the new directory and a third to delete them from the root directory.

The "View" files function lets you look at the file itself, in either ASCII or hexadecimal format. You can mark special parts of the file if you wish and even control the speed at which the file scrolls on the screen. You can also move through the file a line at a time by hand if you wish.

Finally, *XTREE* has the ability to exit to DOS to perform other functions or run other programs. Once you have done that, you simply return to *XTREE*.

*XTREE* has fine error-handling and is extremely easy to work with. It is not copy-protected, so you can move it to your hard disk without any problem. And, as mentioned earlier, it is extremely fast and very easy to use. We had it up and running about five minutes after we opened the box. Menu bars at the bottom of the screen virtually eliminate the need to use the manual and there is online help as well.

The current market version of *XTREE* comes with an installation program that permits the selection of on-screen color and allows configuring the program to just about any MS-DOS machine, including the Sanyo line. It should be noted that the color selection installation does not work properly on the standard 550/555. I suspect this will be fixed soon, but even if not, it detracts very little from the package. The standard choice of colors used in the program is as good as any other, and they work well on either a color or monochrome monitor. On a system with a Video RAM Board, a full choice of 16 colors is supported, and on the 775, the choice appears to be eight.

Utility packages should make life easier for the person using them. *XTREE* does this easily and extremely well. If you are going to purchase a utility to help you view, manipulate or restructure files or directories, *XTREE* is absolutely for you. It is a beauty of a program!

(Executive Systems, Inc., 15300 Ventura Blvd., Suite 305, Sherman Oaks, CA 91403, \$49.95, MS-DOS 2.11 and 256K required)

— Lonnie Falk

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## ABAS — Converting BASICA To Sanyo BASIC

ABAS is an IBM BASICA to Sanyo BASIC conversion utility. It does what the producers claim, and does it well. First, you save the IBM program on an IBM using the SCII SAVE option. ABAS cannot work with the standard IBM SAVE. Next, load BASIC in your Sanyo, then load BAS.CNV. The prompts will take you from there.

One of the options allows you to watch the progress of the conversion. If you have a color monitor, you can watch the BASIC text turn from green to yellow as ABAS converts each character. Interesting at first, but after awhile you will get tired of watching and go off somewhere to wait for it to finish. It takes a long time to convert a program of any length, since it converts one byte at a time. ABAS is a BASIC program, and that doesn't speed the process any.

Don't expect miracles; not all BASICA commands will convert to Sanyo BASIC. Another potential problem is the use of PEEK and POKE. You can almost bet that PEEKs and POKEs to an IBM will not be the same as to a Sanyo. Unless you are familiar with the memory map of both machines, you would do well to avoid programs with many of these.

Some programs are BASIC loaders for a machine language program. These are identified by the presence of lots and lots of DATA statements. If you see thousands of DATA statements in a program you'd like to convert, give up. If you really want it, you'll have to rewrite the whole thing anyway.

ABAS is not for those who do no programming at all. There will almost always be some statements that won't convert and you'll need a good knowledge of BASIC to correct them. ABAS does just what you would do if you were to sit down with a program listing and convert it to Sanyo BASIC. Its advantage is that it will do much of the initial work for you.

ABAS is a nice, if unexciting, utility. When you don't need it, you'll forget all about it. If you do need it, you'll be darn glad you bought it.

For the price, I recommend that you buy it if you do any programming at all. There is a lot of material out there in BASICA. You might as well take advantage of it and ABAS gives you a good head start at doing that.

(Shamrock Software, P.O. Box 3445, Moscow, ID 83843,  
509-878-1714, \$15.95)

— Jim Pile

## VidSwitch550 — Monitor Switches Are A-OK For Video RAM Board Users

If you have the Video RAM Board in your system, it's quite likely that plugging and unplugging monitor cables is starting to get tiresome. The new VidSwitch550 from A-OK Computers is a good solution to the problem.

The VidSwitch550 is a push-button switch in a little black box with three cables exiting to the rear. The box mounts on the left side of your Sanyo using one of the screws that holds the case in place. The three cables replace the cable(s) that you are presently using to hook up your monitor. One plugs into the monitor, another into the Sanyo's standard video jack and a third into the Video RAM Board jack.

In the case of the color VidSwitch550, the three plugs are all different: an 8-pin DIN for normal Sanyo video, a 9-pin D connector (IBM type) for the Video RAM Board and an 8-pin EIAJ connector for the monitor.

The monochrome version, of course, uses three color-coded, RCA-type phono plugs. When everything is hooked up properly, you just switch the device "on" (button pushed in) for the Video RAM Board and switch it "off" for normal Sanyo video. There is a color insert in the button to show that it's on.

To use the color VidSwitch550, as is, you will need an RGB monitor that can handle both video outputs (we tested it on a Sanyo CRT-70 and it worked well). For monitors like the popular Panasonic CT-1300D that won't take the IBM-standard sync signals produced by the Video RAM Board, you will still need an adapter.

Overall, the VidSwitch550 (either version) is almost a necessity if you have the Video RAM Board but still use the normal mode.

(A-OK Computers, 816 Easy St. Suite 615, Silver Spring, MD 20910, 301-585-5105; monochrome \$29, color \$69)

— Ed Ellers

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## Doom-Quest — An Adventure Game That Measures Up

For those of you unfamiliar with Adventure games, a little history is in order. One of the most popular types of recreational software, the Adventure game takes you on a journey through a series of locations (caves, rooms, forests, etc.) in search of certain types of objects, usually treasures. Along the way, you run into obstacles such as dragons, pits, locked doors and the like. By using logic, common sense, and sometimes luck, the novice Adventurer can do pretty well for himself in the course of just a few hours of play.

The grandfather of Adventure games is *Adventure*, or *The Original Adventure*, as it is now called. Available from Norell Data Systems, this game climaxes in the Adventurer's transformation to wizard. Other popular games are *Zork*, *Phantom's Revenge*, and soon, *Doom-Quest* by Migraph Software.

*Doom-Quest* combines the usual text description of locations and objects with half-screen graphic representations. Although the trend in recent years has been toward graphics Adventures, most fail to replace one's own vivid imagination as inspired by exciting text. Take *Mystery Fun*

*House* — please! This game for the Apple II has poor graphics and an equally senseless plot. And, as with all graphics Adventures, it is slow. Migraph wisely made provisions to enable the player to switch the graphics on and off with simple "On/Off" commands.

While this speeds up play, you can miss a clue or two. *Doom-Quest's* graphics are ambitious, yet unpretentious. Coupled with the addition of clues (at least one to every location), common problems like getting stuck in a maze can be minimized since help, often but not always cryptic, is always available.

The Adventurer's mission in *Doom-Quest* is to regain the jewels of MAgorth (yes, the MA is emphasized), a wizard-type evidently on the skids with other wizard-types in the area. These two jewels, combined with a third, give MAgorth great power. If you can forgive the familiar story, you will enjoy the 60 or so screens and the logical challenges this Adventure entails.

Upon completion of *Doom-Quest*, Migraph Software promises *Doom-Quest 2*, a quest requiring the Adventurer to take the jewels across the land of Og (a bad wizard-type). And of course, just like *Rocky IV* and *Friday the 13th Part V*, you can fully expect a *Doom-Quest 3*, or *Son of Doom-Quest*, or perhaps *A Fistful of Doom*, all of which will probably be well worth your attention.

(Migraph Software, 33125 15th Avenue South, Suite B-121 Federal Way, WA 98003, 1-800-55GRAPH; \$44.95, requires 256K and one double-sided drive)

— George M. Smart

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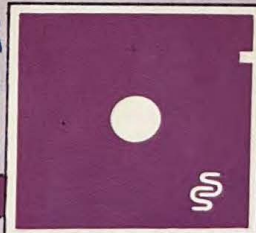
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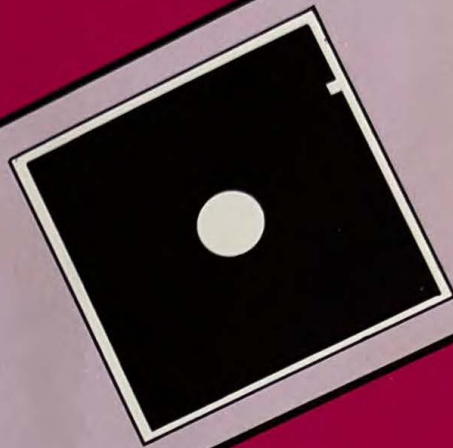
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## SOFT TALK



**BASIC ENHANCED** is an enhancement to Sanyo BASIC which allows your Sanyo to understand commands for SOUND, EDIT, SEARCH and HCOPY. SOUND gives your computer a full range of tones from 21 Hz to 25,000 Hz. EDIT uses all standard Microsoft edit commands to make editing programs faster and simpler. SEARCH allows you to search for strings, each PRINT, for instance, to replace it with LPRINT. HCOPY will allow you to print the entire text screen to the printer without having to hit control keys as with a screen dump.

*BASIC Enhanced* requires DOS 2.11 and is currently available for \$34.95 from Michigan Software, 43345 Grand River, Novi, MI 48050; (313) 348-4477.

\* \* \*

**PERSONAL MONEY MANAGER** is a menu-driven database and reporting system for financial information. It is designed to keep track of income and expenses in different categories. It also furnishes current balances of all your income and expense accounts.

*Personal Money Manager* requires 128K on the 550/555 and is currently available for \$49.95 from MichTron, 576 South Telegraph, Pontiac, MI 48053; (313) 334-5700.

\* \* \*

**FIVE OVER PAR?** *Compu-Golf*, just might be for you! This self-teaching program reinforces the coach's instruction. For the novice golfer, *Compu-Golf* introduces the proper fundamentals of the setup. More experienced players use the program to analyze specific problems by learning and comparing the relationship of the parts of the setup to the resulting flight pattern.

*Compu-Golf* consists of more than 50 terms and definitions and provides you with a system that can be used on an individual basis to expand knowledge and playing skills. This program frees the coach from the necessity of individual "one-on-one" instruction, thus allowing the freedom to assist more than one golf student at a time.

*Compu-Golf* is for the MBC-775 and 550/555 with a Video RAM Board and is currently available for \$89.95 from DGT, Inc., 2260 N. Druid Hills Road, Atlanta, GA 30329; (404) 325-8324.

\* \* \*

**TURBO DRIVE550** is a program that allows you to use a portion of your computer's RAM to emulate a disk drive. The major advantage of a "RAM Disk" is that it accesses memory faster than both floppy and hard disks. It also reduces wear and tear on the disk drives.

There are five versions of *Turbo-Drive550* designed to run with the various operating systems that Sanyo has shipped with the MBC-550 series computers.

*TurboDrive550* is currently available for \$33 from A-OK Computers, 816 Easley St., Suite 615, Silver Spring, MD 20910; (301) 585-5105.

\* \* \*

**MYCHESS** is a championship micro-computer chess playing program which offers considerable flexibility in setting up and playing the game. It can play a game from the beginning, playing either white or black. A position may be set up and the game can be continued from that point. You can also save a game in progress and resume it at a later time.

*MyChess* features a color graphics screen depicting the playing board and pieces. It has nine skill levels, over 850 moves, and each move can be recorded automatically on a line printer as the game is played. At the end of the game, you can save a listing of the moves into a text file for later viewing or printing.

*MyChess* operates on the standard 550/555 and is currently available for \$34.95 from The Software Toolworks, 15233 Ventura Blvd., Suite 1118,



\* \* \*

**SMARTCOOK** is a recipe program which allows you to select a recipe from 2 categories, conventional or microwave cooking, the number of servings and ingredient substitutions. You may also print customized recipes when you wish.

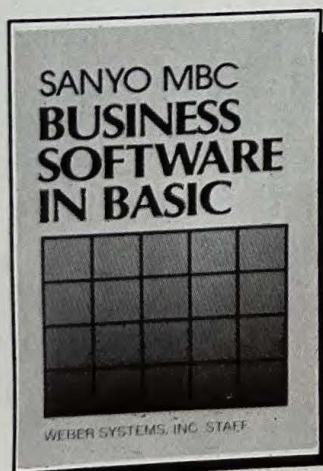
*SmartCook* is currently available for the 550/555 for \$13.50 from LeCom Enterprises, Inc., P.O. Box 346, Winfield, IL 60190; (312) 682-0650.

\* \* \*

**BASIC BUSINESS SKILLS** is what you'll find in *Sanyo MBC Business Software in BASIC*, a new book from Weber Systems. This book consists of 13 programs written in BASIC for the Sanyo MBC-550/555 series computers. Each program is designed to solve a specific business application. Programs include: *Mailing List, Accounts Receivable, Accounts Payable* and *Depreciation*.

Source code and step-by-step operating instructions are included for each program. All programs have been tested by novices to insure user-friendliness.

*Sanyo MBC Business Software in BASIC* is currently available for \$17.95 from Weber Systems, Inc., 8437 Mayfield Rd., Chesterland, OH 44026; (216) 729-2858.



\* \* \*

**SCRIPTURE MEMORY** is a user-friendly memorization program which helps you memorize Bible scripture. This program uses the Topical Memory System as its data file and provides a list of topics from which to choose.

Scripture quotations are from the 1983 version of the New King James Version Bible.

*Scripture Memory* uses the most common method of scripture memory, by topic, reference and verse. It is currently available for \$25 from Bill Branham, 127 Randall St., Reinbeck, IA 50669; (319) 345-6791.

\* \* \*

**OTC STOCK EXCHANGE** is a simulation program which will help you understand how the price of stock fluctuates. Included is a list of nine stocks, last year's prices, change, and this year's prices.

The simulation allows one to six players and indicates whether or not it is a "Bull" or a "Bear" market. *The Wall Street Journal* headlines will reflect three stocks whose gains or losses are in addition to any that normally occurred during the year.

*OTC Stock Exchange* is currently available for the 550/555 for \$17.95 plus \$2 S/H, from Softsol, P.O. Box 42096, Las Vegas, NV 89116-0096; (702) 452-0989.

\* \* \*

**QUIK SWITCH III** is a push-button switch that allows you to effortlessly switch a color RGB monitor between the Video RAM Board and the normal Sanyo video. There is also a Quik Switch I which is for monochrome monitors.

This switch takes care of sync inversion and mounts to the left side of the computer. It is designed especially for monitors like the Panasonic 1300 D that are associated with sync problems when used with the 550 series computers.

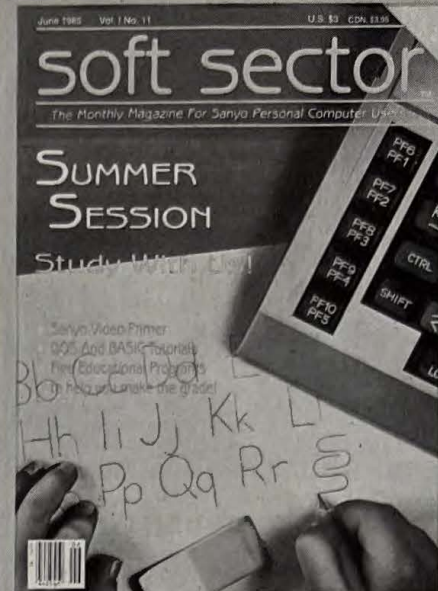
Quik Switch III is currently selling for \$79.95 and Quik Switch I is \$29.95. Both are available from C-Tek Systems, 132 N. Washington St., Falls Church, VA 22046; (703) 241-4952.

\* \* \*

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\* \* \*

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The First Touch Model 9250 Keyboard Strip is currently available for

\$19.95 from 3M, Data Recording Products Division, Department DR85-32, P.O. Box 33600, 3M Center, St. Paul, MN 55133-3600; (612) 736-2355.

\* \* \*

**A COMPUTERIZED ATLAS** is now available from Software Concepts which allows you to put away your big bulky volume with the endless index. This program takes you to any country in the world by simply typing the name and gives you a closer look by simply using its magnification feature.

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The *Atlas* allows you to find a specific city, capital cities, information about a city or country, latitude and longitude coordinates, and the distance between any two points on the globe.

*Atlas* operates on the MBC-775 and the 550/555 with the Video RAM Board. It is currently available for \$69.95 from Software Concepts, Inc., 1116 Summer Street, Stamford, CT 06905; (203) 357-0522.

\* \* \*

*The products and services listed above are currently available for Sanyo personal computers and many will be reviewed in future issues of SOFT SECTOR.*

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Are you tired of your sloppy, hand-printed disk labels that no one but you can decipher? This little program will help you clean up your act.

# Disklabel Plus!

By Paul Selig, Jr.

**H**ave you ever wanted to keep your diskettes handy and out in the open but didn't because you didn't like the look of your disk labels? Have you ever tried to print out nice disk labels but were unable to obtain pleasing results? If you answer

yes to either of these questions, *Disklabel Plus!* is for you.

All that is needed to use the program is a Sanyo MBC-550 series computer with BASIC, and a dot matrix printer capable of expanded and compressed print. Optionally, you can purchase a "highlighter"

marker for an added effect.

The program is written to take the place of the manual calculations that you would have to undergo to obtain centered results on the label printout. Also, an optional print command allows small "home-based" software manufacturers to automatically

generate labels with a unique serial number on every label.

For those who wish to duplicate a large number of a single label, options are available for multi-label printing and the saving and loading of the label "image" to or from the diskette. The program can

also be easily transported to other similar personal computers.

*Disklabel Plus!* starts off by immediately branching to a subroutine which sets up the printer codes for the rest of the program. The codes in the listing are for the Okidata printer series, but can easily be

changed for any other printer capable of expanded and compressed print (such as the Gemini-10X or Epson series printers). By inserting the appropriate codes into the subroutine and resaving the program, you could have the program configured for many different brands of printers.

The program will then draw the main menu, which gives you five options to choose from:

- 1 — Enter a Label Image
- 2 — Print Label Image
- 3 — Print Labels With Numbers
- 4 — Save/Load Label Image
- 5 — Exit Program

(Paul Selig, Jr., a high school senior, is president of the Tri-County Computer Users Group and has been programming for the past eight years. He may be contacted at 20734 Stanford Ave., Fairview Park, OH 44126-1433; 216-333-2457.)



The first option allows the entry of the label data (title, description, and a small type field for other information). If the field lengths are exceeded, the program will prompt you for the re-entry of those fields. After all the field data has been entered, you are returned to the main menu.

The second option allows you to print the label image which was previously entered. After selecting this option, the program will prompt for the number of identical labels to be printed. If you want only one, just press RETURN. If you want many labels, just enter the number you desire. The program will wait for you to ready the printer and after you press RETURN, will carry out your print request.

The third option is almost identical to the second, with the addition which allows the entry of the starting and ending serial numbers instead of the number of labels to be printed. If this print option is selected, the serial number will overwrite any information which was in the "Other Information" field. The program will proceed to print out the labels with the serial numbers

indicated. After the print is finished, you are returned to the main menu.

The fourth option allows you to save a label image to the diskette or to load a previously saved label from diskette. If you choose to save the label, you must assign a filename which is not currently on the diskette. The program will save the image and return you to the main menu. If you choose to load a previously saved image, you are given a display of the current directory and are prompted for the filename to load. If a label image is loaded from the diskette, the image currently in memory will be overwritten by the new label image.

The last option allows you to exit from the program and returns you to the system level. Any images which are in memory and not saved will be lost by this action.

The program is set up to accept the data from the user, to center the data, and to print out that data onto standard one-up labels. Any portion of this program can be modified (the first version of this program was originally written for Avery 4146 labels, which are 4 by 1<sup>6</sup>/<sub>17</sub> inches). If you change the size

of the label, for example, you will have to change the calculation in the centering routines.

The centering routines are written to center the title, description and information field onto the label. It is done by taking the length of the field and subtracting it by the longest possible length for that field, and dividing that result by two, to obtain the amount for the printer to TAB to center the field. This is the same way that it is done if you are making labels by hand, so it should not be difficult to change if you use a different size label. (You must first find out how much space the compressed, standard and expanded lines will take up on the label.)

This program was written to show how a simple but tedious task could be simplified and made more useful by using a computer. You need not use this program just for disk labels, but for anything which requires a label with information on it: chemical jars, video tapes, report headings, etc. I hope you enjoy *Disklabel Plus!* and find it a useful addition to your program library.

#### The listing: DSKLABEL.BAS

```

10 *****
20 '* DISKLABEL PLUS! *
30 *****
40 '
50 'By: Paul D. Selig, Jr.
60 '
70 'The following gosub routes to the printer configuration section
80 GOSUB 730
90 CLS
10 LPRINT CHR$(30);CHR$(30);
100 LINE (0,0)-(639,199),,B
110 PRINT :PRINT TAB(29)"Disk Label Generator"
120 PRINT :PRINT TAB(32)"Paul Selig, Jr."
130 PRINT TAB(10)STRING$(62,"_")
140 PRINT :PRINT :PRINT
150 PRINT TAB(27)"1 -- Enter a label image"
160 PRINT TAB(27)"2 -- print labels"
170 PRINT TAB(27)"3 -- Print Labels w/serial #s"
180 PRINT TAB(27)"4 -- Save/Load a label image"
190 PRINT TAB(27)"5 -- Exit Program"
200 PRINT :PRINT TAB(30);:INPUT "please enter your choice (1-5): ",C
210 ON C GOTO 220,320,440,560,710:GOTO 90
220 CLS:PRINT STRING$(17,"-");"    Diskette Title"
230 LINE INPUT T$
240 IF LEN(T$)>17 THEN INPUT "Title too long...Press RETURN to continue",X:GOTO
220

```



```

250 CLS:PRINT STRING$(34,"-");"      Description"
260 LINE INPUT D$
270 IF LEN(D$)>34 THEN INPUT "Description too long...Hit RETURN to continue",X:G
OTO 250
280 CLS:PRINT STRING$(56,"-");"      Other Information"
290 LINE INPUT O$
300 CLS:PRINT T$:PRINT D$:PRINT O$:PRINT :PRINT
310 INPUT "Is this correct? ",X$:IF X$="n" OR X$="N" THEN GOTO 220 ELSE INPUT "P
ress RETURN to go back to the MAIN MENU",X:GOTO 90
320 CLS:INPUT "Number of labels to print?",Q
330 IF Q=0 THEN Q=1
340 INPUT "Ready printer, press RETURN",X
350 X=(17-(LEN(T$)))/2:TT=INT(X)+1
360 X=(34-(LEN(D$)))/2:DT=INT(X):IF DT=0 THEN DT=1
370 X=(56-(LEN(O$)))/2:OT=INT(X):IF OT=0 THEN OT=1
380 FOR Z=1 TO Q
390 FOR X=1 TO 5:LPRINT E$;TAB(TT);T$;CHR$(13);:NEXT X:LPRINT:LPRINT
400 FOR X=1 TO 3:LPRINT S$;TAB(DT);D$;CHR$(13);:NEXT X:LPRINT:LPRINT
410 FOR X=1 TO 2:LPRINT C$;TAB(OT);O$;CHR$(13);:NEXT X:LPRINT:LPRINT
420 NEXT Z
430 GOTO 90
440 CLS:INPUT "Please enter the STARTING serial number: ",SN
450 CLS:INPUT "Please enter the ENDING serial number: ",EN
460 CLS:INPUT "Press RETURN to Start print....",X
470 FOR Q=SN TO EN
480 X=(17-(LEN(T$)))/2:TT=INT(X)+1
490 X=(34-(LEN(D$)))/2:DT=INT(X):IF DT=0 THEN DT=1
500 O$="Serial Number: "+STR$(Q):X=(56-(LEN(O$)))/2:OT=X
510 FOR X=1 TO 5:LPRINT E$;TAB(TT);T$;CHR$(13);:NEXT X:LPRINT:LPRINT
520 FOR X=1 TO 3:LPRINT S$;TAB(DT);D$;CHR$(13);:NEXT X:LPRINT:LPRINT
530 FOR X=1 TO 2:LPRINT C$;TAB(OT);O$;CHR$(13);:NEXT X:LPRINT:LPRINT
540 NEXT Q
550 GOTO 90
560 CLS:INPUT "[L]OAD a label, or [S]AVE the current label? ",X$
570 IF X$="l" OR X$="L" THEN GOTO 650
580 IF X$="s" OR X$="S" THEN GOTO 590 ELSE GOTO 90
590 CLS:INPUT "Please give the label an output filename: ",FF$
600 CLS:PRINT "Saving ";FF$;". "
610 OPEN "o",1,FF$
620 WRITE #1,T$,D$,O$
630 CLOSE #1
640 GOTO 90
650 CLS:FILES "A:*. *":PRINT
660 INPUT "Please enter the filename for the label you wish to load: ",FF$
670 OPEN "i",1,FF$
680 INPUT #1,T$,D$,O$
690 CLOSE #1
700 GOTO 90
710 CLS:INPUT "Press RETURN to exit to the system....",X
720 SYSTEM
730 'Printer configuration: Set for the Okidata Series. You may change the
740 'codes for your own printer. C$ is the COMPRESS PRINT code, S$ is the
750 'STANDARD PRINT code, E$ is the EXPANDED PRINT code.
760 '
770 '(Note: the CHR$(30) clears the printer between every mode change)
780 C$=CHR$(30)+CHR$(29)
790 S$=CHR$(30)
800 E$=CHR$(30)+CHR$(31)
810 RETURN

```



*If you're considering buying a joystick, this project will let you get a grip on the rest of the market.*



# Build An Atari Joystick Interface For Your Sanyo

By Chuck Sites

*(Chuck Sites, a free-lance computer programmer and systems consultant, is an expert in 8088 and Z80 assembly language and enjoys programming in C. He may be contacted at 2205 Weber Ave., Louisville, KY 40205; 502-454-7218)*

There are a number of relatively inexpensive locator devices, such as joysticks and "trackballs," available for computer systems which use an Atari-type adapter. Unfortunately, the Sanyo uses an Apple-compatible game port, thus Sanyo users are forced into using either an Apple-compatible joystick or some sort of adapter such as the joystick adapter from Wico. Both are relatively inexpensive (between \$29 and \$49).

My interest in this issue was stirred when I saw a Wico trackball on sale at my local computer store. A trackball, in my opinion, is a more useful device than a joystick, and since it was an Atari-compatible device, it seemed that it would be a simple matter of building an Atari interface adapter for the Sanyo.

As it turned out, it was a simple matter. What follows is a small construction project for building an Atari joystick interface for your Sanyo.

This device can be built in a half-hour for less than \$4. If you're interested in using a trackball on your Sanyo, this is the only interface which will allow it to work properly. (Even Wico's own joystick adapter has problems with a Wico trackball.) If you prefer Atari's trackball, this interface will work with it also. So with that, let's jump in and see what is needed.

The Sanyo has an Apple-compatible game I/O port located toward the rear of the machine. The socket labeled CN8 is the one used for connecting the joystick to the computer. The *Sanyo Operator's Guide* shows where the location of this socket is, but they do not describe how the port is laid out as far as a pin description goes.

A quick look into an Apple II reference manual can help. Figure 1 is a comparison of the pinouts for this port between the Sanyo and Apple. Apple's manual describes the port in terms of the electrical characteristics of the device and is helpful in describing which pins are grouped together. However, I found that it still did not help in describing how the port could be accessed by the Sanyo.

In the *Sanyo Operator's Guide* there is mention that the joystick interface is tied to Port 18H (24 decimal) through an 8255 PPI (Parallel Peripheral Interface). By using a simple program to read this port (Listing 1) and a small



wire with a 4.7-ohm resistor soldered to one of its ends, I was able to determine how the port would react to specific input. Figure 2 shows the results of this experiment.

Now, you may be wondering what purpose this experiment served. The answer involves the way an Atari-type joystick works. Atari-type joysticks work by opening and closing a series of switches to indicate direction. This differs from an Apple-type joystick, which uses potentiometers (variable resistors) as a method of indicating the direction in which the stick is moved. The Atari-type joystick has five switches, one for the fire button, the other four for indicating the direction.

There is no circuitry involved, simply switches which are either open (non-conducting) or closed (conducting) to indicate direction. The switches are tied to a common voltage source and then tied to a port that will read the voltage. By using the wire and resistor in my experiment, I was simulating the way in which the Atari joystick would work.

I discovered that there is a difference between the Sanyo and Apple game I/O port (see note in Figure 1). Figure 3 shows a schematic of an Atari-type joystick.

Wico's trackball is another matter. The trackballs built for Atari-type interfaces must have some circuitry to convert the spinning of the ball into pulses. The pulses are then converted into signals which simulate the opening and closing of the switches of a normal joystick. The only difference between the Wico trackball and the standard Atari joystick is the requirement for +5 volts to power the one IC used in its circuitry. By adding this line to our interface, we can now operate either a trackball or a standard joystick.

Figure 4 is the schematic for the final design of the interface. You will notice that I have used resistors on all of the switch lines. This is to protect the 8255 PPI from any raw voltages that it would experience during the closing of a switch. The fire button in the schematic is tied to Pin 6 of the game I/O port by means of a pull-up resistor. This was the only funny part in building the interface.

If you refer back to Figure 2 you will see this series of pins is "active high," or in other words, is sensed when that pin goes high. This is the opposite of all the other switch settings. But since the joystick switches are all tied to a common voltage source, this means that

the voltage supplied to Pin 6 must be inverted.

What I decided to do here was to tie it high all of the time and then use another resistor tied to the fire button to pull it low when the switch is pressed. This works just fine other than the fact that its value in the port is just the opposite of the others.

Construction of this device can be made simple if you do not mind a small "kludge," which means doing whatever is necessary to make it work, even if it's not a commonly accepted practice. You will need a DB-9 male connector, a piece of ribbon cable about eight inches long with at least seven lines, five 330-ohm resistors and one 4.7K-ohm resistor. You will also need a 16-pin

***"... this is the only interface which will allow [a trackball] to work properly."***

DIP Header which has the pins on the top, easily accessible. All of these parts are available at your local Radio Shack store.

You may want to use shrink wrap to cover exposed solder connections. This is not necessary for its operation, but it does add a level of safety to the final product. Slit both ends of your cable and strip off 1/8-inch leads. Next solder the leads of one end of the cable to the DB-9 connector. Note pins 5 and 9 are not needed.

Now for the kludge. Solder four 330-ohm resistors to pins 2, 3, 4 and 16 of the top part of the IC socket, letting the ends of the resistors hang free. We will connect these later. Keep the leads of the resistors fairly short if you can (about 1/4 to 1/8 of an inch long).

Next solder the 4.7K-ohm resistor from Pin 1 of the header to Pin 6 of the header. Make sure the lead from this resistor does not touch the other leads. Solder the last 330-ohm resistor to Pin 6 of the header, letting one end stand free. Now locate the cable wire which is connected to Pin 1 of the DB-9 connector. Solder it to the end of the resistor coming from Pin 16 of the header. Repeat this for pins 2, 3 and 4 of the connector, going to the end

of the resistors in header pins 2, 3 and 4 respectively.

Next attach the line from Pin 6 of the DB-9 connector to the end of the resistor in Pin 6 of the socket. Now solder the line from Pin 8 of the DB-9 connector directly to Pin 1 of the header. Finally, solder the line from Pin 7 of the connector directly to Pin 8 of the header.

Examine your work carefully and make sure it's all neat and pretty. Double-check and make sure that none of the connections are touching each other. I realize this is not the best method for constructing this interface, but it is certainly the simplest.

If you have checked your work and are sure it is correct, then you are ready to install it. The operator's guide for the Sanyo describes how to install a joystick device and this interface is no different. Be careful to install the device with Pin 1 of the IC socket aligned with Pin 1 of the game I/O port.

Using this joystick with your software is easy. In Program 1 you can see how the motion of the joystick affects the bits in Port 18H. The program in Listing 2 is a simple doodling program which shows how to convert the bits given by Port 18H into X and Y coordinates.

You may notice that there is some strange looking arithmetic involved in this program. The expression  $Y=Y+(Y>0)$  will subtract one from Y unless Y equals zero, in which case Y remains at zero. This works out because the expression  $(Y>0)$  returns a -1 if it is true and a zero if it is false. Using this method of limiting X and Y, an extra IF/THEN/ELSE is not needed.

Since we are on the subject of software, I should mention that this joystick interface is not at all compatible with most games that use or require a joystick, Sanyo BASIC included. The commands STICK(0), STICK(1) and STRIG will all return erroneous values. This is because they are looking for potentiometer readings from an Apple-type joystick and not hard-coded bit settings. Even so, I think you will find writing programs to use this interface will be just as easy, if not easier in some cases, as using a standard Apple joystick.

The result of all this is that one now has a choice of the type of joystick he uses, whether it is an Apple-compatible joystick, an Atari-compatible joystick, or as in my case, a trackball. You just can't beat flexibility.



# Listing 1: ATARI-1.BAS

```

1 ' TEST PORT VALUES [Program 1.]
2 ' Program to display the values of port 18H in binary & hexadecimal
3 ' its purpose is to show how the Sanyo-Atari compatible joystick interface
4 ' effects the bits of port 18H. (24 decimal)
5 ' by Chuck Sites, June 5, 1985
6 '
7 DEFINT A-Z
8 '
10 DEF FNBT$(B)=MID$("01",1-((B AND 128)>0),1)+MID$("01",1-((B AND 64)>0),1)+MID
$( "01",1-((B AND 32)>0),1)+MID$("01",1-((B AND 16)>0),1)+MID$("01",1-((B AND 8)>
0),1)+MID$("01",1-((B AND 4)>0),1)+MID$("01",1-((B AND 2)>0),1)+MID$("01",1-((B
AND 1)>0),1)
11 '
12 '
20 PORT18=INP(&H18)
30 PRINT FNBT$(PORT18);TAB(15);HEX$(PORT18)
40 GOTO 20

```

# Listing 2: ATARI-2.BAS

```

1 'DOODLE a simple sketching program [Program 2.]
2 'Uses the Sanyo-Atari Compatible joystick interface
3 '
4 'by Chuck Sites
5 '
10 DEFINT A-Z :FC=1 :BC=7 :COLOR FC,BC :CLS
20 X=320 :Y=100 :HSPED=2 :VSPED=1
25 MAXX=639-HSPED :MINX=0+HSPED :MAXY=199-VSPED :MINY=0+VSPED

```

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```

30 PSET (X,Y),FC
40 GOSUB 1000 :IF FIRE THEN FC=FC+1 :IF FC>7 THEN FC=0
50 LINE -(X,Y),FC :GOTO 40
1000 '
1005 'Joystick polling routine
1010 '
1020 N=INP(&H18)
1030 FIRE=-(N AND 16)
1040 IF N AND 1 THEN Y=Y-(Y<MAXY)*VSPED
1050 IF N AND 2 THEN Y=Y+(Y>MINY)*VSPED
1060 IF N AND 4 THEN X=X-(X<MAXX)*HSPED
1070 IF N AND 8 THEN X=X+(X>MINX)*HSPED
1080 RETURN

```

Parts List

Part	Description	R.S. part	Price
R1 to R5	330-ohm 1/4-watt resistors	271-1315	\$ .39
R6	4.7K-ohm 1/4-watt resistors	271-1330	\$ .39
DIP	16-pin DIP Header	276-1980	\$1.69
DB-9	Sub-D Male 9-pin connector	276-1537	\$1.99
CABLE	5 feet (only 8 inches needed)	278-772	\$3.59

Figure 1: Sanyo and Apple Game I/O Ports Compared

Sanyo				
+5	-o	1	o-	A0
A1	-o		o-	C0
A2	-o		o-	C1
A3	-o		o-	C2
C5	-o		o-	C3
B0	-o		o-	B3
B2	-o		o-	B1
GND	-o		o-	C4

A0 to A3 are the 8255's PA0 to PA3 signals.

B0 to B3 are the 8255's PA4 to PA7 signals.

C0 to C5 are attached to the output side of the 8255's PB0 to PB5 signals (the printer's output).

PA signals PORT 18H.

PB signals PORT 1AH.

Apple			
+5	-o1	o-	NC
PB0	-o	o-	AN0
PB1	-o	o-	AN1
PB2	-o	o-	AN2
C040 STROBE*	-o	o-	AN3
GC0	-o	o-	GC3
GC2	-o	o-	GC1
GND	-o	o-	NC

PB0 to PB2 are push-button inputs

GC0 to GC3 are game controller inputs attached to 150K-ohm variable resistors to +5 volts.

AN0 to AN3 are annunciator outputs.

NC is not connected.

C040 STROBE\* pulse during the read/write cycle of the Apple computer

Note: The Sanyo and the Apple game ports are similar in several respects. Sanyo's B0 to B3 correspond to Apple's GC0 to GC3 pins. Sanyo has an extra "push-button" signal at Pin 16 of the game port, as well as two additional annunciator signals C4 and C5. One item worthy of note is that the annunciator signals C0 to C5 on the Sanyo are connected to the output side of the line drivers used on the parallel printer port and correspond to data bits 0 through 5. If a circuit using these pins holds the lines high or low, it can affect the operation of the parallel printer. Lastly, the signal PB7 (Bit 7, Port 1AH) is used as the trigger to read the four A/D signals found in bits B0 to B3.

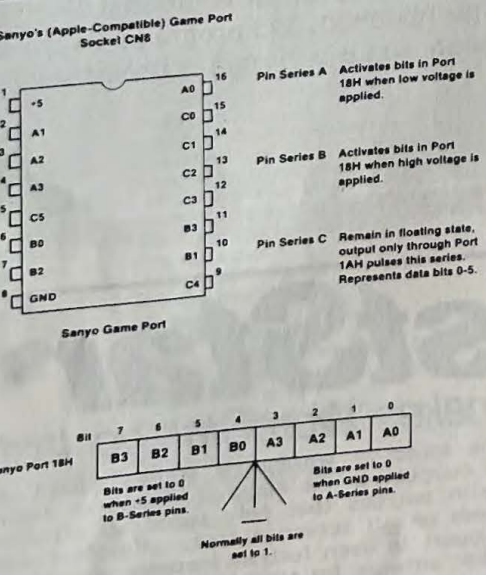


Figure 2.

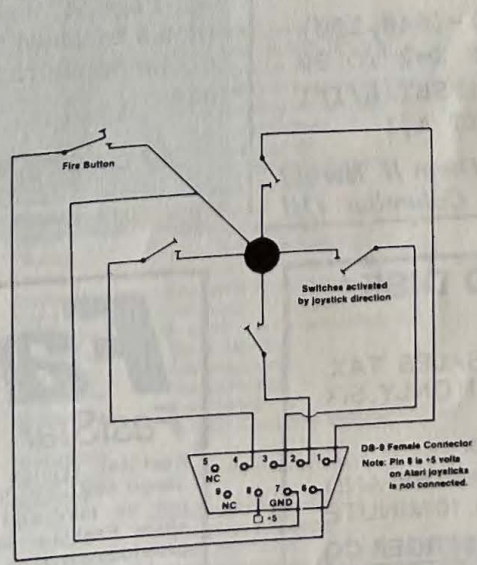


Figure 3: Schematics of an Atari compatible joystick.

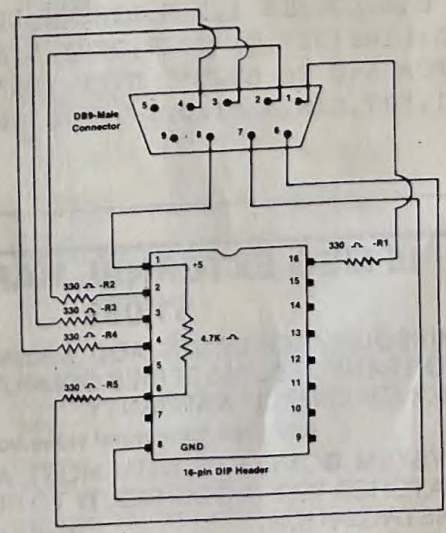


Figure 4: Schematics of Sanyo/Atari Joystick Interface.



★ ★ ★ ★ ★

## PIG LATIN

I have a great one-liner for you. I might add that it may help some of us out some day — we can add to our resumes that we're versed in several languages.

```
1 CLS:PRINT TAB(28)"PIG LATIN DICTIONARY
":PRINT:LOCATE 12,1:INPUT"ENGLISH: ",A$
:B$=RIGHT$(A$,LEN(A$)-1):A$="-"+LEFT$(A$,
,1)+"AY":PRINT"SWINE = ";B$;A$:PRINT:LO
CATE 24,24:INPUT"<RETURN> FOR MORE -X- T
O END",X$:IF X$="X" THEN END ELSE GOTO 1
```

Eric Erickson  
Spokane, WA

★ ★ ★ ★ ★

## STAIRCASE

This program creates a staircase. It uses the LINE command to make squares, starting small and growing larger, which form the tops of the stairs and the walls. The PRINT statements form the front of the stairs.

```
1 CLS:LOCATE 25,1,0:FOR A=2 TO 99 STEP 7
:PRINT:PRINT:LINE(0,0)-(639,99-A),0,BF:F
OR B=1 TO 7:LINE(300-((A+B)*2),100-(A+B)
)-(300+((A+B)*2),100+A+B),2,B:NEXT:NEXT:
LINE(0,0)-(639,6),0,BF:A$=INPUT$(1):END
```

Lawrence Glenn  
Bigfork, MT

★ ★ ★ ★ ★

## MULTI-GRAPH

I call this one-liner *Multi-Graph*. There are a few changes that can be made to the program: Both of the LINE commands can be removed or, if you have a color monitor, the FOR loop can be changed to 8 instead of 80 and the color code 3 on PSET to I-1.

```
1 CLS:LOCATE 1,1,0:LINE(0,100)-(640,100)
,5:LINE(319,0)-(319,200),5:FOR I=2 TO 80
:FOR A=0 TO 6.28*I STEP .01*I:PSET(A/I*1
01.587,SIN(A)*160/I+100),3:NEXT A,I
```

Thom R. Herold  
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## SOFT SECTOR AT LARGE

I came up with this idea thinking I had better show some respect to the magazine that supports the Sanyo. The program just prints a colorful display on the screen using the SYMBOL command.

```
1 COLOR,0:CLS:Q$="SOFT SECTOR":FOR A=0 T
O 5:SYMBOL(205-A*38,20+A*20-(A*4)),Q$,A+
2,A+1,A+1:NEXT:FOR A=1 TO 10:R=INT(RND*6
+1):LINE(1,140+(A*5))-(639,149+(A*5)),R,
BF:NEXT:A$="THE SOFT SECTOR ONE-LINER CO
NTEST":LOCATE 1,21:PRINT A$:WHILE F=0:WE
ND
```

Matthew Freeman  
Renmark, South Australia

★ ★ ★ ★ ★

## POSTAGE METER

This one-liner will compute the new first-class postage according to the weight in ounces that is input (22 cents for the first ounce or fraction, plus 17 cents for each additional ounce or fraction). Another purpose of the program is to demonstrate to new users a simple application of some capabilities of Sanyo BASIC, including PRINT USING, INPUT, INT, and multiple statements on one line.

```
1 A$="1 CLASS POSTAGE=$#.##":INPUT "OUNC
ES";W:PRINT USING A$;.22+INT(W-.01)*.17
```

S.E. (Ned) Heymann  
Ft. Collins, CO



## Correction

Leonard Hyre, author of *The Electric Blackboard* (June '85, Page 36), has informed us of an additional line that should be added to the MONOMOD.BAS program. To correct a color mismatch that shows up in the monochrome version, add:

```
357 COLOR 2,0
```

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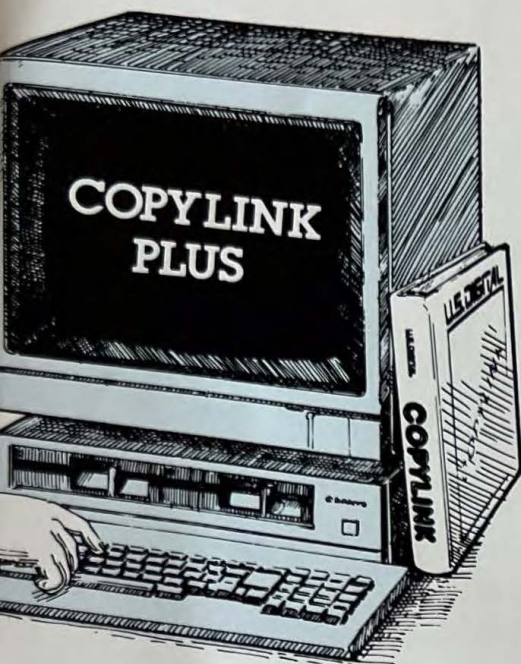
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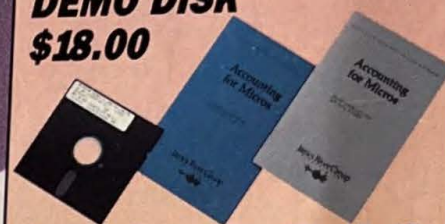
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